Gleanings in Bee Culture

VOL. XL. SEPT' 1, 1912 NO. 17.

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Editorial

We are pleased to announce that Mr. F. W. L. Sladen, F. E. S., of Ripple Court Apiary, near Dover, England, has been appointed as assistant in apiculture to the Dominion Entomologist, Dr. Gordon Hewitt, of the Department of Agriculture, Ottawa, Canada. Mr. Sladen has a high reputation as a beekeeper and also as a student of entomology, having studied the wild bees and other hymenoptera in various parts of the world. We congratulate both Dr. Hewitt and Mr. Sladen.

CLOVER STILL YIELDING; A BUMPER CLOVER CROP FOR NEXT YEAR.

Elsewhere we have spoken of the belated clover flows in the United States. The clovers are still in bloom, in some localities, and are yielding some honey when the weather turns off warm. In fact, there has not been a day in our locality since the last of June when clover did not yield some nectar, provided the bees could fly and the weather was not too cool. We have had less robbing than for many years back. The frequent rains have made every thing yield nectar. As usual, rains have been more or less universal over the northern half of the country; and it is apparent that, unless there is a very severe drouth in late fall, or a bad winter-killing later on, there will be an unusual crop of honey from white clover next year, for there is a heavy growth of clover almost everywhere in the North.

DEATH OF ANOTHER VETERAN BEEKEEPER, LAWYER, AND STATESMAN.

We are sorry to have to announce the death of the Hon. R. L. Taylor, of Lapeer, Mich., on the 17th of August, at the age of 72 years. Mr. Taylor was one of the leading beekeepers of the country, and for many years director and legal adviser of the National Beekeepers' Association. He was an attorney and statesman of ability. He was not only an up-to-date beekeeper but a progressive fruit-grower—a man, in fact, who took an ardent interest in *all* outdoor pursuits.

He had much to do with shaping the legislative policies of the National Beekeepers' Association, a warm friend and supporter of the late W. Z. Hutchinson, an admirer of Mr. James Heddon, and a user of his divisible-brood-chamber hive, of which he had at one time upward of 500. He was an occasional contributor to all the bee journals, writing particularly for the *Beekeepers' Review*.

At one time he conducted a valuable series of apicultural experiments for the State of Michigan, reporting the results in the *Review*. He will be missed in the councils of beekeepers, not only in Michigan, but throughout the United States, for he had come to be a man of national prominence in the beekeeping world.

ANOTHER INSTANCE OF HOW THE SPRAYING OF FRUIT TREES HAS DESTROYED THOUSANDS OF DOLLARS' WORTH OF BEES.

In this issue, in the department of Beekeeping Among the Rockies, by Wesley Foster, there is given some pretty convincing evidence to show that the spraying of fruit trees with arsenate of lead to destroy leaf rollers and the codling moth has resulted in the destruction of an immense amount of brood and bees. It is further stated that a Mr. Harvey, of Montrose, estimates his loss as over $2000, the result of such spraying.

While Paris green is often used for the spraying of fruit-trees to kill the leaf rollers and codling moth, arsenate of lead is getting to be more generally used. Whether it is more destructive to bees than Paris green, we do not know; but apparently our leading fruit-growers regard it as a very superior substitute for Paris green. It may be admitted that in some cases bees are not killed by the use of these poisons, yet it seems to us that the proof is becoming more and more conclusive that fearful destruction is and has

in many cases been brought on the bee business when fruit-growers are so ignorant of their own interests as to spray while the trees are in bloom. This matter should come before our State and national associations of beekeepers, to the end that the needed legislation may be secured to protect beekeepers against their ignorant neighbors the fruit-growers. There should be little or no opposition, as our leading horticulturists admit that it is a positive damage to spray while trees are in bloom.

HONEY-CROP CONDITIONS.

THERE is not much to add to what we have already given on pages 509 to 512 in our last issue; but the spell of cold rainy weather that has prevailed over the United States during the last two weeks would have a tendency to cut down the yield where belated clover was still in bloom, for it should be understood that clover came into bearing this year much later than usual, and continued over a longer period. The effect of chilly weather of late will have a tendency to make the general clover crop in the East somewhat lighter than the earlier indications showed.

PRICES.

By consulting the Honey Column in this issue it will be seen that the market is a little unsettled with a tendency to maintain last year's prices. There should not be a slump in prices, because California and some other parts of the West will not have as large a crop as usual. The shortage in bees in the East will have a tendency to hold prices level. If there comes a general reduction by reason of a big crop of white-clover honey that is still in the hands of the beekeepers, it will be when this honey is unloaded and reaches the general market. The opinion seems to prevail that there is a large amount of clover honey still held back, and that prices are now as high as they will be this season; that those who have a crop ready to market would do well to sell at once.

LATER.—Late reports indicate that the clover and basswood crops in Illinois and Wisconsin are going to be light. The cool weather coming on just when the season should have been at its best, checked the flow of honey. As Illinois and Wisconsin are two of the principal States for the production of clover honey, it will reduce the general aggregate of clover.

Reports from other sections of the country in the East are very favorable. The State of Maine has had apparently a good crop. See the following:

From all reports, so far as I can tell, we have had in this State one of the best seasons for honey in many years. Nearly every one who comes here for supplies tells of the wonderful yields they have had. Not one, but many, have reported that they have taken off two and three complete supers, and the bees were at work in the third and fourth supers. This is extra good for this State, although it would indicate by reports that the yield had not been quite as good in the eastern part of the State as in the western.

Mechanic Falls, Me., Aug. 15. J. B. MASON.

Here is also a report from Mr. Crane, of Vermont, just as we go to press:

Bees have done fairly well here; but the drouth in July cut short the crop—an average crop, I think.

Middlebury, Vt., Aug. 21. J. E. CRANE.

THE LAST OF THE SPECIAL NUMBERS FOR 1912.

THIS special number on wintering completes the six special numbers that we advertised for the year 1912. We believe that most of our readers have appreciated the effort that we have made in placing before them practically a whole number of GLEANINGS containing the information that they needed most at the time. We are well aware that we can not please all of our readers all of the time. This special number, for instance, will have little interest for our subscribers in California and in the South; and the seasons are so different in many of the foreign countries that discussions on wintering would be more timely if they came in February or March; but it has been our aim, as we said before, to please the largest number possible.

There have been two who have objected to our special numbers. One of our friends, after reading the February 15th issue, wrote us that, if we were going to turn GLEANINGS into a poultry paper, he would quit then and there. He had not noticed the announcement of our special numbers, and did not know that we were having more to say about the combination of bees and poultry than usual in that number. Another thought that we were hardly giving full value for his money when we devoted so much space in the April 1st issue to automobiles. We have had hundreds of letters of appreciation, especially of our horticultural number, and also of the one on swarming and increase.

We should like to know whether there are other subjects on which it would be worth while to devote a whole number of GLEANINGS. If you have any ideas on the subject, let us have them on a postal card. Already several have suggested that we have a special number on beekeeping for women. It is probable that we shall

arrange for this some time next year; and in anticipation of it we should be very glad if our readers belonging to the gentler sex would send us their experiences. Why did you take up beekeeping? What are you making out of it? If you do all the work yourself, how do you manage about heavy lifting? Where do you sell your honey? We shall, of course, appreciate good pictures; and for all of those that we can use, and for such articles as we accept, we shall expect to pay probably a little more than our usual rates.

TENEMENT HIVES FOR OUTDOOR BREEDING.

In this issue will be found several articles describing various forms of tenement hives for wintering bees outdoors. Some thirty years ago this scheme of wintering groups of hives in one big winter case, with packing between the hives and the walls, was exploited a good deal more than it has been during late years; but during the last two years there seems to have been a simultaneous if not a spontaneous movement on the part of a number of beekeepers to go back to the old principle. Apparently there was no previous understanding between these various parties. Cellar wintering, under average conditions, does not accomplish all that is desired; and perhaps we may say the same is true of the ordinary outdoor wintering; but Mr. R. F. Holtermann, of Brantford, Ont., one of the number who have adopted the tenement principle, apparently did so, not because it wintered bees any better than the old way of wintering in the cellar, but because bees, when packed outdoors, do not require any further watching or manipulation till quite late in the spring, when they need to be equalized and other spring work of a like character attended to. It so happens that Mr. Holtermann had other work to do during the winter, and he was compelled to adopt some form of wintering that requires less constant watching of temperature and ventilators than the ordinary up-to-date cellar demands. It should be understood that Mr. Holtermann had one of the best bee-cellars, if not the very best, in the United States or in Canada. In fact, this cellar is shown in our A B C and X Y Z of Bee Culture as an ideal cellar. That Mr. Holtermann wintered his bees successfully in such a cellar is not to be doubted. He would have been using that cellar to-day, probably, had it been possible for him to be at home during the winter, when he could control conditions. Now, he can be away all winter, let the bees sleep for six or seven months, and yet during all that time, with not a soul near them, he has the very comfortable feeling that his bees do not need attention, because they can take care of themselves.

For very cold climates the tenement plan has its advantages; and an outside winter case for four, six, eight, or even ten hives is relatively cheaper than a double-walled hive or even a winter case for a single-walled hive. Cheap panels can be made up out of low-priced lumber; and when suitable hooks and eyes are provided the whole can be assembled around a group of hives in a comparatively short time. A wheelbarrow or a wagonload of packing material can then be shoveled on top.

A couple of beekeepers of Canada told me last winter that the principle is as good in practice as it is in theory; and the best part of it all is that the individual colonies do not have any outside exposure more than the front, if there be two rows of hives. If there be but one tier, there will be an exposure of front and rear, and one side of each end hive. In either case the individual warmth of the clusters or several hives is conserved and not dissipated by so many outside exposures as we have when a single colony is wintered outdoors; and if one colony of a group happens to be a little weaker than some of the others, it shares the heat of the whole bunch.

Another nice thing about the arrangement is that it will work as well in cold as in milder climates. If it is an open winter when the bees can fly, there will be no trouble, as there would be if the bees were in one of the best bee cellars. When it is warm outside, the temperature of the cellar runs so high that the bees become uneasy and die by the thousands.

We believe the tenement hive has come to stay. The logic of last winter has rather jammed that fact into the heads of some located in the colder climates. Of course, we do not expect to have many winters as cold as the last one; but we never know when they will come; and from the facts already gathered it will be seen that the tenement hive is always ready, either for extremely cold climates or a mild one, or for warm winters or cold ones.

Of late there has been quite a tendency toward outdoor wintering; but the cold winter through which we have just passed is discouraging to some in the far north who have been using double-walled hives—not because they were not all sufficient during an ordinary winter, but because they hardly afforded adequate protection during an extraordinarily cold one.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

NO WONDER, says Dr. Kramer, *Schweiz. Bztg.,* 217, that yellow bees flourish better in America than in Switzerland, because America has potash soils.

BEES DESERT watering-places when oranges bloom, p. 435. Isn't it the same thing with any other bloom? I can tell when a flow lets up by seeing the bees begin again on the water-tub.

THE EDITOR of *Deutsche Bienenzucht* counts it of great importance upon introducing a queen to cage first the old queen in the hive a few hours, then put the new queen in the same cage, and in the same place in the hive, and let the bees release her. He says the bees do not know their mother at all, only her odor, and that odor is given to the new queen by the cage as covering her own odor, if I understand correctly. [There may be something in this; but it would be a lot of work to cage and recage queens for introducing. We doubt whether it would pay.—ED.]

DO BEES sting drones to death? When you see a worker sting another worker you don't have to watch very long before you see the bee curl up and die. Did any one ever see a drone curl up and die immediately after a worker had stung it or pretended to sting it? [We have seen bees make a bluff at stinging drones, but never saw them do the act. It is our belief that, when the honey-flow stops, the drones are simply pushed out of the hives, and that they simply die from starvation. We do not believe that nature has designed that worker bees shall sacrifice themselves as well as the drones, because it is cheaper to starve them than to sting them to death. —ED.]

I SUPPOSE beekeepers will smile a quiet smile of indulgence upon reading, p. 384, that bees recognize the different spots of playing-cards. And yet—and yet, is it not just possible that bees are guided by form much more than by color? And is it proved beyond a doubt that they can not distinguish at a glance the difference between an eight-spot and a ten-spot just as well as we can? We are too prone to measure every thing by our own senses. One who knows nothing about the keen scent of dogs would likely be skeptical upon hearing of a hound scenting a trail upon the full run. If a creature with four legs is so much beyond us in the matter of scent, may not one with six be just as much beyond us in the matter of recognizing form?

HARRY G. BRANT, p. 417, it must be a very exceptional case when bees trouble boxes of berries. For years strawberries, raspberries, and blackberries have been on my place, the first two part of the time by the acre; and although boxes of berries were freely exposed for hours, I never heard any complaint about the bees. During all these years there must, too, have been times of dearth, and certainly there we were feeding bees this year during the first of strawberry-picking. By the way, A. I. Root, we have a seedling that would interest you. I think it is a little the best strawberry I ever tasted, and one of the largest. Some object that it is not sour enough. [Years ago, when A. I. Root grew strawberries for market in a large way, we had 500 colonies and nuclei located within a stone's throw of the berry-patches, and at an equal distance boxes of berries were placed before they were actually sold; but never once did the bees attack the berries so far as we can remember.—ED.]

YOU SAY, Mr. Editor, p. 396, that bees of a foul-broody hive would carry the disease into hives near by. I suppose that means that the bees of the diseased colony returned from the field and entered wrong hives. That's worth thinking about, for it knocks out the Baldridge cure of foul brood, according to which bees that go to the field return without any disease. Some error one side or the other. [Perhaps our statement, page 396, was a little strong; but nevertheless, when we had foul brood years ago we were in the habit of examining the combs of near-by colonies that faced in the same direction — especially that colony which had an appearance and location almost exactly the same as the one affected. If the diseased colony in the first place was a bad one, we were almost sure to find a few stray bad cells in the nearest of two or three hives facing in the same direction.

We have been a little slow about recommending the Baldridge method of treatment, for the very reason suggested by you. It has been our preaching and our practice, that, the sooner a diseased comb is gotten out of the hive, the better. The only time we have recommended the Baldridge treatment is when a great deal of brood in the apiary is involved, the sacrifice of which for a few bad cells in the comb would be considerable. Where only occasional colonies are affected we would treat at once; that is, we melt up every comb containing a diseased cell or two, or more.—ED.]

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

The weather during June and July was the coldest for 21 years.

* * *

Five big meetings for beekeepers have been arranged by the State Association, acting with the University of California. It would have been a great help to have these meetings advertised in the bee journals in advance, but the date was not fixed in time for that.

* * *

With a fine-pointed medicine-dropper I sucked the honey from orange-blossoms, measured it by drops, and computed it by apothecaries' rules, on an estimated number of blossoms per tree. The result was an amount so large that, for the sake of my veracity, I will not give my figures.

* * *

A county association has been formed in San Bernardino Co. to meet alternately at San Bernardino and Redlands on the first Monday evening of each month. The writer is secretary for the present, and those wishing to join and help with the work will kindly communicate with him.

* * *

As I look at the pictures of the remains of Mr. Atwater's apiary, destroyed by fire, page 483, Aug. 1, I can not help thinking of the many apiaries that have met a like fate by brush fires in California, all of which could have been prevented by keeping weeds, grass, or other dead vegetation out of the yards.

* * *

The monthly crop report of the California Beekeepers' Association has been a great success. The reports were within themselves well worth the annual dues charged for membership. I believe, however, more local data should be given. Beekeepers seem especially anxious to know what the different localities of the State are doing.

* * *

The other day I had occasion to shift the lower story of a hive to the top, setting the super beneath. The lower story was painted white, while the super had been primed with oil and yellow ocher, and it was amusing to watch the bees alight at the bottom of the white story, after they were shifted, and try to find an entrance between the two sections of the hive. It suggested to me that color as well as position has a part in helping the bees to locate the entrance.

While in the act of introducing an imported queen a few days ago I discovered a well-developed case of American foul brood in my back yard. This is the first case I have had for four years, and it has undoubtedly been contracted from diseased bees near by, of which I am sure there are many. From information that I have gained recently I am led to believe that there are hundreds of diseased colonies in San Bernardino County

* * *

I quote the following from the report of the San Bernardino Co. grand jury:

> We have examined the books in the office of the County Bee Inspector, and find that the principal charge made by the bee inspector is for office work; but it appears he spends very little time in his office. After investigation had, we would report that the present County Bee Inspector is not conducting his office in an efficient manner, and we would, therefore, recommend that the said office be declared vacant by the board of supervisors.

The following quotation was taken from the *Daily Facts* a few weeks later:

> The office of County Bee Inspector, graced by "Bob" Heron, was declared indefinitely vacated although Inspector Heron presented a lot of documents to show what a good man he was.

* * *

I have been receiving queens from several localities the past few weeks. Some have been in cages entirely too small and with too few attendants accompanying them. One which I received had but eight attendants, and three of those had died. I waited almost two months for the arrival of one order, and several weeks for another. Becoming disgusted at waiting so long, I tried a third breeder, ordering by wire, and had my queens introduced the 6th day from date of my order, though they came more than 2000 miles through the mail.

* * *

Louis H. Scholl, page 434, July 15, tells why Texas beekeepers failed after having such bright prospects. Nearly all of us can sympathize with Mr. Scholl and his Texas neighbors, having traveled the same road ourselves at different times. The great majority of California beekeepers have had the same experience this year, but they should not be inclined to give up, though it is discouraging indeed. I should not be surprised to see a good crop next season; but any way it will be necessary to keep a "stiff upper lip" and take good care of the bees, as we may "hit it hard" again some day. The beekeeper who has his hives full of bees is the one who will reap the greatest reward.

Notes from Canada

J. L. Byer, Mt. Joy, Ont.

A letter from one of the best-known apiarists in Illinois says, "We are still feeding our bees, and expect to for another month, as there is hardly a clover blossom in our section, and we can get no honey till the fall flow." While conditions were not so bad in our section, yet a statement like that in the latter end of June made me think that we should be very thankful that things are as good as they are.

* * *

Clover has been very scarce in many parts of Ontario this year; but prospects are exceptionally good for another season, as the spring "catch" is one of the best for many years. Alsike seed is very high in price, and the many fields now covered with a growth of this clover will be left for seed another year. Given a normal winter, things certainly look good for next season; and beekeepers will, no doubt, see that their stock is put in good condition for the winter, whether it be a mild or severe one. Extra good preparation does no harm, even if a moderate winter should come; and if extra severe, the precautions taken will repay tenfold all attention given.

* * *

Unseasonably cool weather during all of basswood bloom prevented much honey being gathered, even if basswood did make the best showing for ten years. However, basswood lasted nearly three weeks, and considerable honey came in along with the thistle—the latter plant yielding better than for some time. Prospects are now good for buckwheat if we get warm weather; and, by the way, we have had less warm weather this past summer than the "oldest inhabitant" can recall during any other year. However, a medium crop has been secured by all I have heard from; and as bees are in fine condition there should be no great kick coming from the fraternity, especially when prices are good and the demand practically unlimited.

* * *

Recently we have seen some statements in the bee journals which would go to prove that spraying fruit-trees while in bloom is not injurious to bees. While I am at all times open to conviction, it will take a good deal of substantial evidence to convince me that bees do not suffer severely when spraying is done at this time, and I believe a great deal of evidence, thoroughly reliable, can be given to prove the opposite. Indeed, I think it is very unfortunate that the non-poisoning theory should be given any prominence, for some men would be only too glad for a chance to go back to the old way. I say "some men," and by this I do not include the well-informed fruit-grower, as he knows that the bees are his friends, and will take no chances on killing them on the blossoms, especially when he has, in addition to this, learned that the blossoms are injured when sprayed while in full bloom.

* * *

On page 166 Will Jensen makes some astounding claims for the plan he advocates for doing away with spring dwindling. Being as far south as Texas, I am made to wonder how it is that he has so many weak colonies as to be able to figure out that he saves 97 per cent each year by the plan. If I understand the plan correctly, he compels the bees to extend their brood area by dividing the combs with a sheet of foundation—the last thing the most of us would think of—well, he may be all right for his "locality;" but, as the Scotchman would say, "I hae my doots." [If we are not mistaken, Mr. Jensen's experience has been in Virginia chiefly, this year being his first in Texas.—Ed.]

* * *

Weather has been very hot during past few weeks, and that reminds me of a rather amusing thing that happened in Toronto last week. Needless to say, many of our American cousins have some queer notions as to the condition of Canada, climatic and otherwise; and, judging by letters I have received, many think we never have any warm weather up here. Any way, last week the International Association of Police Chiefs held their convention in Toronto, and Secretary Carr took the care, when sending out circulars of instructions to delegates that were coming, to advise them to bring heavy underwear and light overcoats with them. Many of them did so, and one can imagine how they felt about it when they found the heat so intense. The chief from St. Louis said it had his city "beat to a frazzle," to use a current expression; and when next time they visit Canada they will hesitate about following their secretary's advice, even if the convention should be held in January.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

The shipment of Western comb honey will begin before this item appears, the bulk of the crop moving this month and next. The early packers will get the best price, as has been the rule for several years. The quality of the honey will be good; but Colorado will, as usual, ship out considerable slightly yellow honey.

* * *

A report comes from Twin Falls, Idaho, that the bees are not doing as well as last year. Alfalfa was cut much earlier this year than has been the custom in that district. Reports from Eastern Oregon and Southern Idaho are favorable, and honey of fine quality will be shipped. Loss from fruit-tree spray is also reported, the loss being a serious one.

* * *

There was much swarming this season among the bees near Denver. Although the increase has been large, many more swarms would have been saved if hives had been available. Taking Colorado as a whole, little fault can be found with the honey flora and crop conditions; but we have had so many troubles with the bees themselves that the shipping crop will not be even as large as that of last year, which was below the normal. Spraying fruit-trees while in bloom, and spraying the trees, the spray falling on the blooming clover beneath them, has destroyed many colonies in Fremont, Mesa, and Delta counties. The condition is becoming so serious that vigorous steps must be taken to avoid the danger another year. The fruitmen and the beemen must get together and know what is to be done under the circumstances.

* * *

THE SUMMER BEE-MEETING.

A most enjoyable event to a beekeeper is attending a summer field meeting where bee men and women can talk over their work, eat a picnic lunch together, exchange experiences, and go back home to apply the new ideas gained. Such a meeting was held in Cortez, Colorado, July 29, and about twenty were at the noooday lunch, while over forty attended the afternoon session of the meeting when Mr. Frank Rauchfuss gave a talk and demonstration in grading comb honey. The morning session was a short one, as so much visiting had to be done, and the beekeepers who had to come long distances were late in arriving. Foul brood, its symptoms and treatment, was the morning topic; and after we had feasted on the lunch-picnic dinner we had some demonstration work in putting up sections, before Mr. Rauchfuss took the floor.

A county association with about twenty members was formed, and the members plan to order bee-supplies in a body, sell their honey at a uniform price, and aid the bee inspector in controlling foul brood and in exhibiting honey at the county and state fairs.

Mr. T. G. Wilkerson was elected president, and Mrs. Jordan secretary-treasurer. It is hoped that the association will be able to keep together and be of real benefit to the members. A score of such summer meetings should be held in Colorado every summer. They would mean much to the beemen of the State.

* * *

SPRAYING FOR THE LEAF-ROLLER.

Fruitmen in the Canon City fruit district have been up against a hard proposition in fighting the leaf-roller. Spraying with arsenate-of-lead solution has been done, both before and after the opening of the blossoms. Bees began to suffer at once, and the first indications were bees hopping around in front of the hives and dying in large numbers. A little later brood was killed in great quantities, and many queens were lost. Mr. Brainard writes me that most of the bees in the fruit district have been destroyed, and that he will have to move out if the spraying is continued another year.

It is reported that the spraying has killed the rollers, but no fruit crop will be harvested this year. It will be a very thorough test of the value of bees for fruit if the Canon City district is to be destitute of bees altogether. The orchards are the most thickly set of any I have seen; and hundreds and thousands of acres of bloom will undoubtedly suffer from lack of pollination. It is sincerely hoped that the spraying will not be resorted to another season, and that it will be found unnecessary.

Mr. Harvey, of Montrose, told me that he had lost fully $2000 by fruit-growers spraying for codling moth when the trees were in bloom; but that, during the last few years, the fruitmen were learning better when to spray. I do not know how well informed beemen are in other places; but the majority of Colorado specialist beekeepers do not blame the fruitmen for killing their bees with arsenical spray when the trouble is foul brood. Our Colorado men are pretty close observers.

Conversations with Doolittle

At Borodino, New York

BEES TEARING DOWN QUEEN-CELLS.

What causes bees to tear down queen-cells about the time the young queen larvae are changing to the pupal form? I have been having trouble in this way during the entire season, especially since the flow of nectar has stopped. I have tried caging the reigning queen, or fastening her to one side of the hive with a queen-excluder, or placing the cells over a queen-excluder on a strong extracting colony; but the bees seem to tear down the cells about the same, no matter where I try to keep them. I have fed the bees liberally, but I do not see that this makes any difference. Then I have used black bees, hybrids, and pure Italians; yet the destruction goes on all the same, until I have become nearly discouraged. Can you tell me what causes this trouble?

There are several causes for bees tearing down their queen-cells after they have built them and have gotten them all sealed over. The most common one is a sudden stop in the nectar flow from the fields, which cessation, if long continued, results in the destruction of all queen-cells, and many times the killing-off of all drones. And I may add here that, if feeding is not resorted to as soon as this flow of nectar ceases, it will have little effect toward saving the cells after the bees have once decided on tearing them down, although it will generally preserve the drones. So the queen-breeder should be constantly on the lookout so that he may know just when there is a stop in the secretion of nectar in the flowers. For this purpose, as well as for many others, a hive having a strong colony should be placed on scales, so that a glance each day may confirm his observation of conditions.

The next most common cause for the destruction of queen-cells is that a virgin queen gets into the apartment where cells have been placed for safe keeping. They sometimes appear where it seems impossible. Once I opened the hive of a colony which had three frames of cells in different stages of completion, in order to take out the frame having ripe cells, which I wished to use. While stopping to do a little other work I set one of the other frames having queen-cells down outside of the hive. It remained there perhaps two or three minutes, when it was returned and the hive closed. Two days later I went to this hive, and my surprise can be imagined to find some forty-five of the fifty-two cells I had left there two days before all destroyed. It was about two o'clock when I was there the first time, this being about the time queens take their flight; but it did not seem possible that any virgin queen could have entered the hive during the time it was open.

The hive standing next to this colony had a virgin which was old enough to fly out, and I soon decided to open this hive and look for her. The moment I lifted the covering the mournful humming noise made by the bees indicated that they were hopelessly queenless. It then dawned on my mind that this queen was out two days before, and had divined that the colony I had opened needed her presence there, so she had either alighted on the frame while it was standing outside the hive or had gone in at the top unnoticed. This queen had a little dark spot on one of her sides, so I at once looked over the upper hive where the cells were destroyed, and soon found her there. This was one of the most far-reaching losses I had ever had up to that time, and I was greatly inconvenienced and chagrined over the mater. But I take it that neither of these cases is identical with the experience of the correspondent, as his seems to be a long-drawn-out difficulty.

Up to about ten years ago I could account in one way or another for the tearing-down of queen-cells. But there came a year when, after about the 10th of August, colonies in which I had cells stored would begin to tear down a few, from two to five or six, doing so gradually from the time the queens in them arrived at the pupal form till they were about to emerge from their cells. And they would do this even in queenless colonies. I fed them right along and looked carefully for any virgin queen that might have gotten in, but all to no avail. All the plans which I had used successfully for twenty years failed. I had no trouble in getting queen-cells started; and, as a rule, sealed, but soon after this the bees would begin to tear them down slowly, till I got behind in filling orders, and became exasperated. While lying awake one night bemoaning this state of affairs the idea of making such colonies hopelessly broodless, all but the queen-cells, occurred to me. The next day I tried the scheme, and all worker brood, whether sealed or unsealed, was taken from hives having queen-cells stored therein. This settled the matter, and since then I have had no trouble of this kind.

Bee-stings for Sciatic Rheumatism

I have had sciatic rheumatism for two years. I am applying the stings daily on my arms, and am meeting with good results. I will report later.

Winfield, Pa., July 25. LEVI HUMMEL.

General Correspondence

A SUCCESSFUL QUEEN-CAGE CANDY MADE WITHOUT HONEY

A Substitute for Sealed Honey During the Winter

BY ARTHUR C. MILLER

He who makes available the principles embodied in a good idea is quite as much to be honored as he who originates it; and he who makes practical what another has only partly developed is also a benefactor. Sometimes necessity is quite as often the foster-mother of a half-grown plan as she is reputed to be the mother of invention. Apropos of which is the result accomplished by one New England queen-breeder when bee-disease laws and postal rulings bade fair to hamper his business seriously. Reference is made to the work of Mr. O. F. Fuller, of Blackstone, Mass., a persistent sort of chap who seems to have a way of making good with ideas which some one else has *not quite* won with. Confronted with the troubles alluded to, and hearing of a bee food or candy containing no honey, he sent to England for samples and recipes. In due time both arrived, together with a feeder in which to use the candy. But the candy did not behave according to rule or expectations, having a faculty of getting too hard or too soft. So, instead of guessing, Mr. Fuller hies himself to an acquaintance who is a professional candy-maker, shows him his bee-candy and the recipe, tells him the trouble and what he desires to accomplish. The candy-maker very cordially tells him all he can about it, and also tells him what ingredients to increase or decrease in experimenting. At the problem Mr. Fuller goes with his usual persistence, and the result is success, as might be expected. He has a candy which he and other queen-breeders have been using all the season with perfect success, and not a drop of honey is in it. The recipe has been very generously furnished by Mr. Fuller, and here follows:

Granulated sugar, 5 lbs.; coffee A sugar, 1 lb.; glucose, 1 lb.; water, 1½ pints; one level teaspoonful of cream tartar.

Boil until the temperature reaches 240 degrees F. for summer use, or 232 F. for winter use. Do *not* stir it while cooking. When it reaches the desired temperature, remove from fire and let it cool until the finger can be held in it for half a minute, then stir and stir until it is so thick that it will barely pour out. It may then be run into molds, feeders, or cages. If kept in a closed receptacle it will not change for an undetermined period, the writer having some made last February which shows no change yet, and Mr. Fuller says it will keep indefinitely.

Any thermometer which will register up to 300 degrees F. will do to test the cooking syrup; but a regular candy-maker's thermometer is better, if one plans to make much candy.

Queens have been successfully shipped pretty much over this country and Canada and to England with it. Full colonies shaken from their combs have been shipped with no other food than this candy, and with the best of results.

He and others also use this candy in feeders as a winter food, and many Massachusets and New Hampshire beekeepers are high in their praise of it.

Last winter, which we all know was a severe one, it was used in quite a number of cases where the bees had so little honey it could be called none, and the colonies supplied with the candy wintered excellently. Incidentally, a very few pounds of candy took the place of many pounds of honey.

The feeder used for the purpose is an English device. As made and used by Mr. Fuller, it is a rectangular frame made of strips of wood about two inches wide. These are grooved about ¼ inch from one edge, and into this groove a pane of glass is slipped, making a box with a glass bottom. Mr. Fuller's feeders take a pane 6x8 inches. These boxes are filled with the candy when it is hot and soft, the candy coming within about a bee-space of the top. When it is cold it can be handled like a block. Each feeder holds about 2½ lbs.

Two or more of these are inverted over the top of the brood-frames, and covered with cushions or some similar protection. The bees have access to the whole of the now under surface of the candy. No moisture or air can get at the edges or top of the cake, so it neither hardens nor softens. By turning back the cushion the beekeeper can readily see how much of the food is consumed.

Mr. Fuller does not claim any of this as original; but he does know that he has made a success in the compounding of a candy for bees which is without honey. He has given to the old candy-feeding system the one or two little kinks which it needed to make it all that can be desired. To the queen trade, and thence to all beekepers, he has brought a boon in the shape of a thoroughly practical and successful food

which is free from all the dangers of a candy containing honey.

Providence, R. I., Aug. 13.

[It is to be hoped that a candy of this description may come into general use; for, aside from the danger of disease, honey is not always uniform, and, furthermore, it takes up moisture so rapidly that the candy containing it is likely to become disastrously soft in damp warm weather. We should think that the glucose candy would be an improvement in this respect, but we may be mistaken.

We wonder whether the commercial glucose purchased in this country would be satisfactory. The so called corn syrups evidently would not, because of the varying amounts of cane sugar which they contain.—ED.]

LIME DOES DRY A CELLAR

BY JAMES M. MUNRO

In reviewing GLEANINGS, Feb. 15, 1911, p. 110, I take decided objection to the heading of an article by F. L. Huggins, "Lime in the Cellar will Not Dry the Air," and what makes it the more misleading is that he uses terms in chemistry to substantiate his position. I have worked in a lime trade for the past 40 years, and I know of no better agent than stone lime (CaO) to absorb moisture unless it may be fire.

For those of us who have to winter our bees in a clay cellar in a severely cold climate I consider lime a most useful article, as it dries the air and does not give off any poisonous gases as some methods of temporary cellar heating do.

OTHER USES OF LIME.

How many know that air-slacked lime, dusted into places where it is not convenient to whitewash, is death to mold? How many farmers know that, if they are caught in a shower with a load of hay, a light sprinkle of air-slaked lime will prevent it from turning musty, and that it is a benefit rather than an injury to the stock? How many know that a dusting of air-slaked lime applied to potato tops on a damp morning in a summer fog will prevent potato blight?

I begin the prevention by dusting with lime as soon as the potatoes are cut. This not only lessens the chance of the seed rotting, but is a cheap fertilizer, and a preventive against grubs. Then when I harvest my potatoes I sprinkle an occasional handful as I empty them into the cellar. I haul them directly from the field and have no more handling of them, only as required for sale, use, or planting. Before I adopted this plan I used to have to sort the rotten ones out at intervals during the winter. I put the lime treatment to the test in a small way before adopting it wholesale to hundreds of bushels as I do now. Upward of 20 years ago I had some Beauty of Hebron potatoes, and many of us know how susceptible they were to rot. They began to rot, and I put one lot in a box with lime sprinkled in. The others I put in a box without any lime. The unlimed ones rotted so badly that they became a mass of corruption. The lime-treated ones came out dry; and wherever a spot of disease had begun it had dried up.

I consider no farmer's home to be well equipped without a barrel of lime stored in a *dry place*

A GOOD RECORD IN A SMALL CELLAR.

A year ago I was so beset with work that I failed to weigh any of the hives. Many of them felt too light. Four were nuclei. So, naturally, I risked it. I piled them in the cellar like so many rows of stovewood. The size of the cellar is 9x11 feet, 6 feet high, raised 16 inches from the floor, so I think you will smile at the crowded aspect 84 colonies would present. The winter, of course, was very severe, and there was very little snow here. The temperature frequently fell to 40 and even 60 degrees below zero. I began taking cellar notes Jan. 2, which are as follows:

1912. Jan.	2.	Tem.	26	degrees	above	zero	in cellar
"	" 11	"	28	"	"	"	"
"	" 16	"	33	"	"	"	"
"	" 30	"	36	"	"	"	"
" Feb.	12	"	34	"	"	"	"
"	" 17	"	44	"	"	"	"
"	" 28	"	37	"	"	"	"
" March	4	"	36	"	"	"	"
"	" 20	"	39	"	"	"	"
"	" 21	"	41	"	"	"	"
"	" 25	"	42	"	"	"	"
" April	4	"	44	"	"	"	"
"	10	"	48	"	"	"	"

On April 12 I set the bees out on their summer stands. The night temperature outside was 21 above zero. The bees gathered the first pollen on April 23 from black-alder bushes.

Now with all this abuse you will wonder how many came out alive. Out of the 84 colonies put into cellar, 78 came through in good order; and what I am surprised at is the small quantity of stores they consumed. I use the ten-frame Langstroth hive exclusively.

Slate River, Ont., Feb. 2.

[If we understand Mr. Huggins correctly, his idea was that the lime would not permanently dry the cellar unless moist air from outside could be kept from coming in again. However, since most cellars

that are wet are wet because of poor drainage, etc., it would seem to us that the lime would be of advantage.—Ed.

WINTERING IN SINGLE-WALLED HIVES IN KANSAS

BY ARTHUR V. SMALL

I winter my bees out of doors in single-walled hives, protected in the following manner: Two frames are removed from each hive. A piece of shingle, with a half-inch strip under each end, is placed crosswise over the frames, which provides an upper passageway for the bees from one comb to another. A piece of oilcloth is placed over this, extending nearly to the bottom-board on each side of the frames. The space between this oilcloth and the side of the hives is filled with about fifty thicknesses of newspaper which are suspended from a strip similar to the top-bar of a frame. The papers extend to within an inch of the bottom-board. It is important that they do not touch the bottom-board, for the moisture which condenses on the back of the hive flows over the bottom-board to the entrance, and these papers must be kept dry. A super filled with newspapers and shavings gives protection above. With this arrangement, practically all of the moisture is condensed on the ends of the hive where it can run off without doing any harm.

The Hoffman frame gives a double-walled end for the upper part of the brood-chamber, and the bees do not suffer seriously in this locality from the unprotected hive ends. In very cold weather, little icicles will form at the entrance; but I have examined the packing at various times during the winter, and have always found it dry. I have followed this method for the last four years with very good results.

TAKING THE TEMPERATURE OF THE HIVE.

This winter I placed an 8x10 glass half an inch above the frames of a ten-frame hive packed as above, and beneath this glass a thermometer lay on top of the frames. By pulling aside the super packing, the thermometer could be read through the glass. After a long cold spell in January the outside temperature dropped to 19 below zero. At the same time the thermometer above the frames registered 32 degrees. That afternoon the outside temperature rose to 5 below, and the hive thermometer read 39. I have watched this thermometer all winter, and a zero temperature will send it down to 36 or 38 in the early morning, but during the day the bees raise the temperature to 42 or higher, and move about freely on the top-bars, the entire cluster being below the top-bars. On days when it is warm enough for the bees to fly, the hive thermometer registers about 70.

With this difference in temperature between the outside atmosphere and the air above the top-bars of a hive I consider top protection almost a necessity, and protection on the sides or ends a decided advantage as long as the hive can be kept dry.

A piece of six-inch board with two V-shaped notches cut in the under side, leaned against the front of the hive, and fastened with a small nail, gives good protection from cold winds and sifting snow.

Topeka, Kan.

[This is virtually double-walled wintering. It amounts to the same thing as a brood-nest covered with a good many thicknesses of paper, with this difference: The paper is *inside* rather than outside of the hive. Right here there may be an advantage.

With regard to the question of taking temperature, see answer to Mr. Ben B. Edgerton in this issue.

The matter of upward ventilation or sealed cover and ventilation only from the entrance is a mooted question. For very cold climates we generally consider that upward ventilation plus entrance ventilation gives better results than a sealed cover and entrance ventilation only. In the milder climates many prefer the last named. We have had excellent results with it in our locality, taking one year with another.—Ed.]

WINTERING IN A DOUBLE-STORY HIVE PACKED IN LEAVES

Importance of so Placing the Stores that They will be Available to the Bees

BY F. H. CYRENIUS

Much has been said about the necessity of using large frames to accomplish satisfactory results when wintering bees out of doors. It is a well-known fact to the observing beekeeper that bees during very cold weather do not shift their cluster from side to side, but will consume all the honey in the combs containing the cluster, and will then starve with plenty of honey on each side of them. Thousands of colonies starve in this way.

This condition could be remedied if this honey at the sides were arranged directly

over the cluster. In order to accomplish this plan most easily, remove the two outside combs of honey on each side, and put in their place empty or partly filled frames. This leaves very little honey in the brood-chamber, but nearly as much as the bees would have consumed under the conditions given above.

In an upper chamber place the four frames of honey in the center of the chamber, filling each side either with partially filled or with empty combs, as one may happen to have on hand.

For the eight-frame hive I would use about five frames of solid honey, for the ten-frame hive, six. This amount ought to carry the bees until another year's honey comes in. This plan has settled for me the question of deep frames, of cluster room, and of starvation.

The protection used is, first, a paper wrapping; then a box that is a little larger than the hive is set down over the hive like a deep cover. The box should be deep enough to come down partially over the lower hive. This box, before being placed on the hive, should be provided with about two inches of packed leaves or fine straw. I prefer leaves. Fill the box about three-fourths full of leaves; level them nicely, and put a follower on them. By stepping on the follower the leaves will pack down sufficiently so that they will remain in place while the box is turned open side down on the hive. Place the hive cover over all and weigh down with a good-sized stone.

Those colonies which were wintered out of doors by the method just described came out in perfect condition—even better than those in the cellar. I had some fear of moisture accumulating in the leaves; but three winters have shown that it does not.

Oswego, N. Y., April 13.

[As our correspondent says, it is very important that the stores be promptly placed with reference to the cluster in the hive. In our locality our bees will make the proper disposition of them if they are left alone; that is to say, they will form a winter nest in the front part of the hive just above the entrance, and two inches or more below the honey. At least that is the rule that has exceptions. In the Langstroth hive, as the stores are consumed, the bees move upward and then backward.

We would doubt, however, the advisability of placing stores in two stories, as here recommended, for *all* localities. It is interfering with nature, even though it is an effort to imitate it by placing the stores above; but the tendency will be for the bees in some cases, at least, to go up into this upper story; and if they should consume all the stores there, they might be left high and dry. The four frames of honey in the upper chamber might be enough, but in our locality we should be afraid that bees would locate in this upper part, eat away the stores, leaving a considerable quantity in the lower hive which they would not get.

Much depends upon the colony. Some bees will locate in the top part of the hive and some in the bottom part, where two stories are given. While our correspondent might be able to arrange the stores properly, the average beginner would complicate matters, we fear.—Ed.]

PACKING BEES ON THEIR SUMMER STANDS

Providing a Passageway Above the Frames

BY C. A. BUNCH

It seems to be an established fact that, to pack bees on their summer stands with upper ventilation, is by far the safest plan for the beginner, even though the packing does get wet from the breath of the bees.

Having had from 60 to 80 colonies of bees packed on their summer stands each winter for the last seven or eight seasons, I find that, in order to winter bees successfully without upward ventilation, it is well to allow them to cross above the frames at will. This is possible if a small ⅜-inch stick is placed across the frames before the board is laid on, with plenty of good packing above, well pressed down. If this is properly done it is impossible for frost to gather above the bees, for they will keep the board above them dry and warm. The consequence is that the bees will not be affected by the cold, and a considerable amount of stores will be saved thereby for use when rapid brood-rearing begins in the spring. But until toward spring, in the climate that we have in Indiana, the entrance must be about ⅜ by 8 or 9 inches, both for ventilation and to keep the hive dry.

Later in the season the entrance is made smaller in order to allow brood-rearing; but if a sleet should chase the front of the hive so as to cut off ventilation I pour some hot water along the front of the hives for the purpose of melting the ice.

Lakeville, Ind.

FIG. 1.—Home of Geo. H. Kirkpatrick, Rapid City, Mich., "built by the bees."

CELLAR WINTERING

Size and Construction of Cellars

BY G. H. KIRKPATRICK.

Although I established my first outapiary over 25 years ago, I have always wintered my bees in cellars, of which I now have three. My experience is that the size of the cellar to be used depends upon the number of colonies to be wintered. Each colony must have not less than 15 cubic feet. In this northern climate our soil is generally sandy and the cellars dry.

I place my bees in the cellars, usually, about the first to the tenth of November. It sometimes happens that we have a few inches of snow at this date; and then when moving the bees from their summer stands to the cellar I use a pair of light hand sleighs, seven feet in length, Fig. 2. We begin at the further end of the yard from the cellar; get the sleighs in place, then gently press a little snow along the entrance of the first hive to close it. The cover is then removed; a quilt is made from two layers of carpet, and placed over the top of the hive. In this way five colonies are prepared and set on the sleighs, and drawn to the cellar and placed as shown in Fig. 3.

The windows are fitted with wire screen, and are left open to admit a free circulation of air until settled cold weather comes, when they are packed with straw which is left until about March 15. After this the windows are left open except on warm days, when they are darkened. Should there be no snow at the time of setting the bees in the cellar I use a wheelbarrow instead of a sleigh.

I have one cellar in heavy clay soil, and

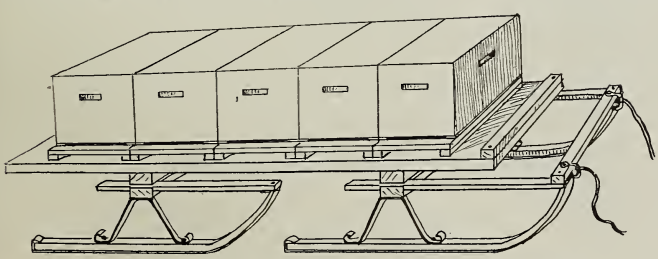


FIG. 2.—Hand sled used in carrying bees into the cellars.

FIG. 3.—How the hives are stacked up in the cellar.

this one is damp, so I use a tray built of lumber sized to ½x3 inches. From this stock I make rims just a trifle larger than the hive-body and put bottoms of burlap on them. These trays are then filled with kiln-dried planer shavings, and placed over the hives on removing the cover, as in Fig. 4. The shavings absorb the moisture and retain the heat, so that the bees winter well. The temperature should be a little higher than that of a dry cellar. I prefer a temperature of 43 to 45 degrees in a dry cellar, and 48 to 50 in a damp one.

It is my practice to *carry* the bees from the cellar in the spring to avoid the jar that they would receive if wheeled on a barrow. If the bees have wintered perfectly, and are quiet, it is my belief that they should be left in the cellar until they can gather pollen. In this climate bees gather the first pollen about April 10th to the 15th. I usually carry the bees out on a cool afternoon when the indications are that the following day will be fair. On the night previous to setting the bees out, I open all doors and windows. The cool air has the desired effect of causing the bees to cluster closely. To prevent them from flying while being moved from the cellar I provide a few strips of cotton cloth; dip them in water, and gently tuck them into the entrances, removing them as soon as the hives are located. At the time of placing the bees on their summer stands I leave the quilts on, placing a piece of tarred felt over each one, large enough to project one inch all around. Over this felt I put the regular cover.

Rapid City, Mich.

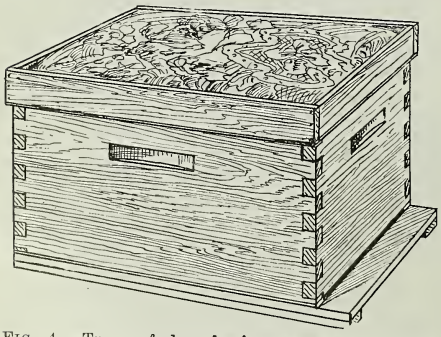


FIG. 4.—Trays of dry shavings set over the hives in the damp cellar.

PROPER WAY OF MANIPULATING AND WINTERING BEES OUTDOORS

BY G. C. GREINER.

While giving a description of the cover-picture of GLEANINGS, Dec. 15, 1911, the editor refers to a former article from my pen, in which I described the management of outdoor wintering as I practice it. I disclaim any semblance of my management and outfit to the arrangement which this cover-picture would suggest, for it is extremely faulty.

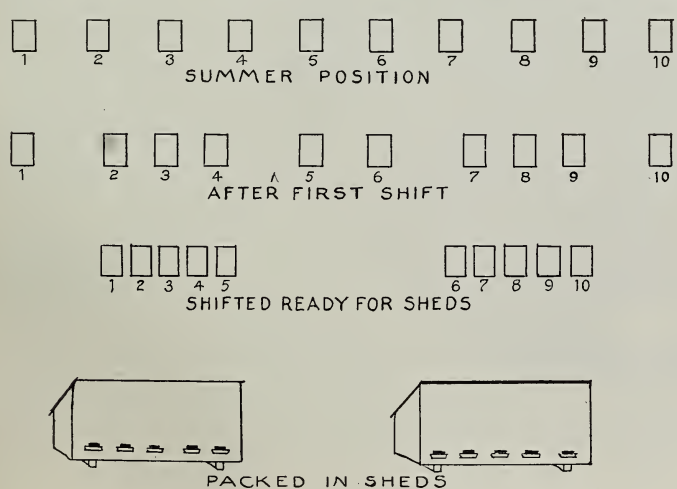
It is not an easy matter to shift bees from one place in the apiary to another, without causing more or less confusion, mixing, and mingling of bees of different colonies, which is always accompanied by some loss of bees. It requires the most careful application of what years of observation have taught me to shift my bees from their summer position to their winter quarters with positively no confusion nor the loss of a single bee. We can change the appearance of a bee home with endless variations in color, shape, material, etc., without any detrimental effect to the bees except, perhaps, a little hesitation for a few times on entering when coming home, if the location is not changed; or we can change their location very gradually, not more than the width of the hive, every three or four days (but these must be *flying* days), and cause no inconvenience to the bees, if the aspect of the home remains the same; but change both at the same time and an undesirable disturbance with loss of bees will be the result. Any manipulation that produces this state of affairs is faulty.

G. C. Greiner's apiary in winter quarters. The hives are gradually moved together in groups, and then the sheds set up over them.

The editor says: "It was his practice, however, to move the bees from the several stands in the bee-yard to a new position under the shed." This gives a wrong impression. Practically I never move my bees under nor into the shed; but I move the shed around the bees. These sheds are made in sections for that purpose. Sides, ends, bottoms, and roofs are adjustable, and held together by square-headed wood screws. The only moving or shifting of bees I ever do is done early in the season, right after the last honey-flow, and very gradually, and not, as the editor says, "late in the season and all at once." That would surely cause a general mixup on the first flying day after the operation.

To explain fully the proper way of moving bees successfully—that is, without any loss of bees—I refer the reader to the accompanying drawing. The upper row shows ten colonies as I work them for extracted honey during the season. They are equally spaced with two feet in the clear between the hives.

The second row shows the same hives after the first shift is made. The four hives, 2, 4, 7, 9, are moved their width toward the center hives 3 and 8. After two or three days (and, of course, I mean flying days), when these shifted colonies have again become accustomed to their new location, the end hives of each section of five, represented by the figures 1, 5, 6, 10, may then be slightly moved toward their respective centers. Under no consideration should these latter be shifted at the same time when the first shift, Fig. 2, is made. That would bring their new stand too near the stands of those just moved, so that more or less mixing up would be encouraged.



The third row shows the ten colonies in position ready for the sheds. If carefully managed, and if the shifting has been done according to the hints

here given, they should arrive at these places without the loss of a single bee.

As I said before, I begin preparations for the winter arrangement as early as the season's work will permit, aiming to give the bees one or two weeks of open flying weather before they are housed for the winter. Then when the sheds are brought into requisition, every colony remains on the identical spot it occupied before the transformation took place. Although the appearance of their homes is completely changed, they are so well acquainted with their location that their first flight from the sheds is as normal as any flight during a honey-flow from their summer position.

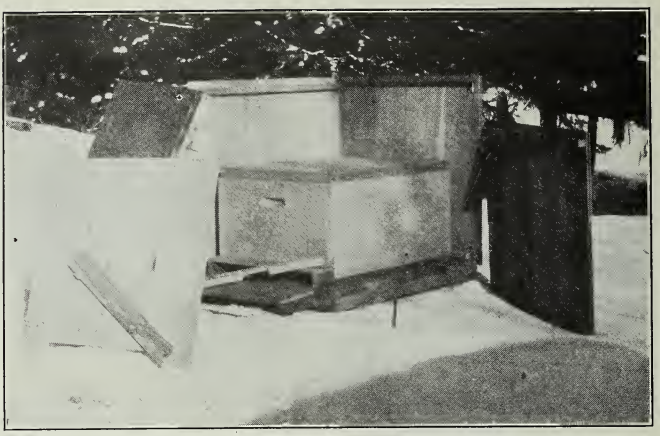


FIG. 1.—Detail of the France outside winter case for single-walled hives.

The photograph shows the same bees in winter quarters, of which a summer view was given on page 430, July 15, 1911.

It will be noticed that my bees have no protection in the line of windbreaks outside of the sheds; but I am surrounded by orchards, groves, and shade-trees that form at least a partial protection against our northern climate. However, I have great confidence in my sheds. They are positively water and frost proof, allowing from two to three inches of chaff packing at the sides, and from six to eight on top over the sealed cover. I can not say that I never lose *any* bees in these sheds. I do lose more than I wish I did; but I never have frosty or moldy combs, except as I find them occasionally in depopulated hives.

It will be noticed that the summer stands are placed on the roofs of the sheds. This is done to keep the ground picked up, to furnish an out-of-the-way place for storing, and as a precaution to prevent the roofs from blowing off. The latter are in no way fastened to the side wall, being held in place only by close-fitting cleats.

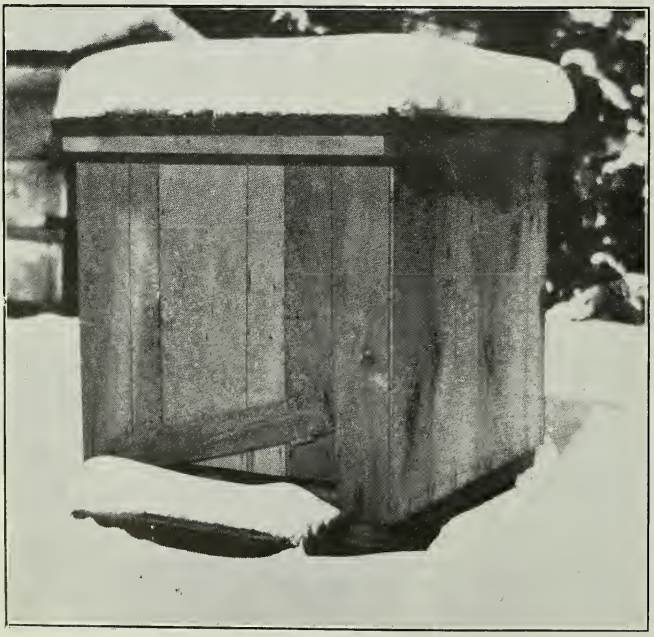


FIG. 2.—The winter case in use.

On the morning of Jan. 5, 1912, with the thermometer at 3 below zero, I examined a few of my sheds, with gratifying results. By simply raising the roofs and pushing my hand through the chaff until it came in flat contact with the hive-cover, I found the temperature of the latter far enough above the freezing-point to prevent any formation of ice on

FIG. 3.—The France quadruple double-walled hive.

their under side. In fact, the sensation was surprising. A decided degree of heat could be noticed.

LaSalle, N. Y.

[We gladly accept your correction as to your method of moving your bees. The plan you have outlined in your diagram is perfectly feasible. The plan of wintering bees in tenement hives is coming somewhat in favor in Canada. In fact, during the last severe winter where they had bees in such hives, they came through in remarkably good condition. The tenement-hive scheme, while it apparently involves the moving of a large number of hives a little at a time, effects an economy in winter protection over the double-walled in-

FIG. 4.—Section of home yard; some of the hives appear tilted, but such is not the case, as the snow is drifted more in some places than in others.

Chrysler's fence having loose boards that are removed during the summer to give more ventilation.

dividual hive. Moreover, it gives a greater protection than any single hive could afford, because the bees of the several hives contribute their individual heat to the entire bunch. For very cold climates, the arrangement here described, or the one by Mr. France next described, or yet the one used by Mr. R. F. Holtermann, as shown in GLEANINGS for Nov. 15 last, may be used to very good advantage. It is a good time now to make up the tenement-hive panels, and thus be ready when cold weather comes.

Mr. Cavanagh in his article in this issue (page 556) says that in an arrangement that he used similar to this, the strong colonies drew from the weak. It would seem as if there might be a difficulty right here. How is it with you?—ED.]

WINTER CASES FOR ONE OR FOUR HIVES

The France Quadruple Hive for Wintering

BY FRANK F. FRANCE.

Here in the North, where we have cold piercing winds, lots of snow and atmospheric changes, we must find some way to protect our single-walled hives. Nearly every winter we have from five to eight weeks of cold weather before the bees have a chance to have a small flight—some of the time when it is thirty to forty below zero. If a colony in a single-walled hive is left out exposed to all these changes it is almost sure to perish.

Our single cases have two inches of space around the sides, and about a foot of space above the hive, all of which is packed either with leaves or fine straw. Over the top of the hive is placed a cap having about an inch space underneath, so that the bees can secure honey in outside combs with ease. In putting this together, notice that the sides are held together by pins at each corner. The entrance is provided with an entrance-block and storm-door to keep out the driving snows and winds. Over all is placed a large cover to keep both packing and hive perfectly dry. This I find to be a very practical and successful winter case for single-walled hives.

The larger hives hold four colonies each, with an entrance at each corner. This hive is used throughout the year, as it is double-walled and packed with chaff. It is divided into four equal parts, each colony by itself, and can have supers and standard Langstroth frames according to the requirements of the individual colonies. Over the honey-boards of all the colonies there is room for six to ten inches of leaves or

fine straw, and a large cover-roof is placed on top.

As long as we need our extra-heavy clothing or overcoats in the spring the hives also need "overcoats." A heavy building-paper or a thick manila paraffined paper of a light color is best to use in wrapping the hives that were wintered in a cellar. The paper should be folded so as to cover the entire hive except the entrance, so that no drafts can get in. If tied with a string instead of tacking on, it can be used over and over every spring. Black building-paper should not be used, as many times on a cold day, even when the sun does shine, this paper will absorb heat and cause the bees to take a little flight, and, of course, be chilled to death.

Many times in the spring when the temperature is up to forty or more the bees come out and have a fine fly, and at the same time there may be considerable snow on the ground. Here is where I notice that many bees perish; for if they once alight on the snow they become chilled so they can not reach the hive again. I use a fine remedy for this; and that is, simply to scatter straw in front and around the hives on the snow, so that, if they should alight on the straw, they would not be chilled, but can rest and return to the hive.

If colonies have good young queens in the fall, with more honey than enough to winter on, and are well protected with winter cases, there will be earlier brood-rearing and stronger colonies in time for the honey-flow the following season.

Platteville, Wis.

[Mr. Frank F. France is a son of N. E. France, General Manager of the National Beekeepers' Association for many years, and grandson of the late Edwin France, who was a frequent and valued contributor to this journal in the interval between twenty and thirty years ago. The Frances have always been largely engaged in bee culture; and their quadruple hives, or what some call tenement hives, have been used by them for a good many years. They are no experiment, because they have stood the test of time. The tenement-hive idea seems to be coming more and more to the front—especially in colder climates—so cold that cellar wintering prevails. See editorial.—Ed.]

Snow in abundance in Nebraska—an unusual sight.

A WINTER FENCE HAVING REMOVABLE BOARDS FOR SUMMER

BY W. A. CHRYSLER.

The illustration shows my home apiary with a winter protection and summer fence. The yard is about 65 or 70 feet square, and holds 130 colonies. The fence is made of 7-ft. by 8-in. cull, short lengths, of various kinds of lumber, dressed both sides, and painted to prevent warping, decay, and also for appearance.

The top rim of the fence is composed of narrow strips nailed on each side of the top ends of the stationary boards to keep them straight and to hold the loose boards in place in winter. The loose boards that are put in place for winter have cleats nailed on them to support them on the lower scantling of the fence, and a button just above it to hold it tightly in place. Buttons are also nailed on each edge. In the photo the removable boards that come opposite posts in the fence have been left as in winter.

Chatham, Ont., Jan. 30.

[We are beginning to believe that an open or slatted fence is better than a solid fence for a windbreak around a beeyard. The force of a wintry blast is broken off more by an open fence or shrubbery than by a solid windbreak against which the wind glances upward and then downward, striking the hives. The railroad companies have evidently discovered the same fact when they make open fences to keep the snow off from their tracks.—ED.]

SWEET-CLOVER HONEY GRANULATES IN THE HIVES BEFORE SPRING

BY LOUIS MACEY.

Our winters here in Ontario are generally dry and sunny, and hoar frost is very unusual. We seldom have much snow, and a sled is an uncommon sight. About 95 per cent of all the bees here are wintered outdoors. I have been packing part of mine every winter for four years and all have wintered equally well with only one or two per cent of loss.

We generally have a warm sunny day nearly every week; and the unpacked bees will fly while very often the others will not. I took chances too much last year and got caught. As the photo shows, none of the hives are packed. During the three weeks of zero, six colonies died and a good many more were badly weakened.

The honey flow of 1911 was good here, and hives were heavy with honey; but it stayed too cold for the bees to "move over."

I have much trouble every year with our sweet-clover and alfalfa honey granulating solid in the hives. The bees kick out lots of it (in dry hard granules) nearly every spring. I had one colony starve in early March one year. With solid slabs of granulated honey some cells were uncapped and partly emptied, and all were dry and hard. I have reported this before, but never received any help. Is there any way to overcome or alleviate this condition? Of course, it is understood the critical time with this granulated honey is in cold, cloudy, windy spells in late winter and spring, when the bees can't carry water, and when the hives should not be opened.

North Platte, Neb.

[The only way to remedy the condition of candied honey in your hive, thus causing your bees to starve, would be to extract all this honey early in the fall and feed sugar syrup instead. You would gain by this, for you could take away the honey that would bring a larger price than the cost of your sugar. Of course, you would be out your time, but you would be able to save your bees.—ED.]

SOME EXPERIENCE IN OUTDOOR WINTERING IN INDIANA

All Plans for Packing Hives in Rows Under Tarred Felt Abandoned for the Large Winter Case Holding Four Hives

BY F. B. CAVANAGH.

I well remember reading of the failures and successes in wintering bees, graphically described by the late W. Z. Hutchinson. I confess that some of the schemes he tried seemed foolish at that time; but my past four years of outdoor wintering has cured me of all conceit, so that I willingly confess "I know nothing;" and in order to make a complete confession I will tell of some of the foolish stunts I tried at outdoor wintering in Indiana; also of the wise stunts which did or did not "pan out."

Several years ago Oliver Foster described in the *Review* a method of wintering four to six hives back to back and covered with straw and earth—a board leaned against the fronts, also covered with straw and earth, forming a dark anteroom in front of the regular entrances. Near the top of the hive, a small entrance was cut for flight. Now, Colorado has a very dry climate, while at Hebron the atmosphere is usually moist. We had very cold weather

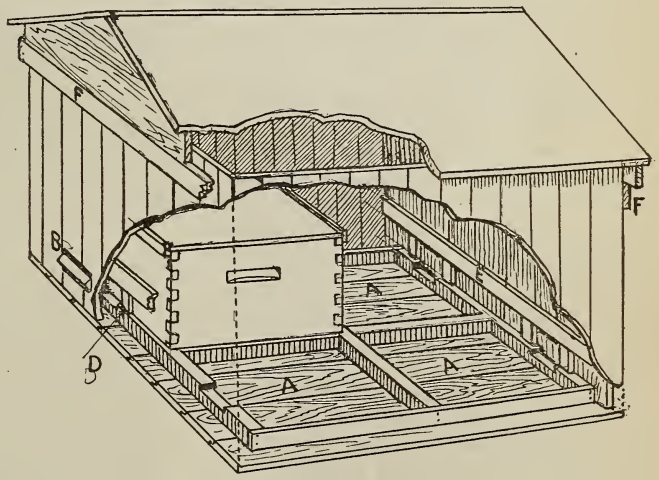
in the winter of 1909, and the results were very unsatisfactory, for the dirt frozen solid not only left the bees virtually packed in ice, but there was little chance of getting rid of surplus moisture, so that many colonies died of dysentery on sealed combs of honey.

Most of the bees, however, were packed above ground in clamps of six or eight colonies each, with the small entrances facing opposite, and a deep super of leaves on top of each hive. Leaves were piled above and packed between; and a tight roof of tar felt covered the whole. A pole or board for a ridge gave the proper slant to the covers, and tar felt was brought clear to the ground on all sides, and banked with sods to hold it in place, the entrances being cut through the felt. The results were fair to poor, the principal difficulties being that, first, the heat absorbed by the felt caused the bees to fly too much and get lost on cool days; second, the strong colonies drew the bees from the weaker ones so that the strong grew stronger and the weak dwindled out. The bees seemed to think that all of the big black thing was their own hive.

I have also tried packing in single long rows; in fact, I've tried dozens of variations such as standing hives on end, packing several hives deep, etc. The first winter, that of 1910, proved quite a success for the long-row system. Three long strips of felt for back, top, and front of the closely packed row covered the whole, including supers packed with leaves. The winter had been steadily cold, and the spring was cloudy much of the time. Encouraged by my success, I repeated the method during the open variable winter of 1910, and I lost altogether too many bees. It seems that the heat of the felt must have caused the bees to fly too much on days which were bright but too cool. The strong colonies drew unmercifully from the weak, and many a colony did I find reduced to a handful of bees, with the queen on a generous patch of brood, which showed what I might have had if the bees had stayed in their proper hives. Of course I saved a great number of weak colonies by the Alexander plan by putting them above the strong colonies over an excluder and drawing brood from below where necessary. I had failed during the three years to winter bees as I knew they should winter; my queens were not at fault. The stores had been carefully arranged, and I had worked so hard, and fixed them up so nicely, to no avail.

Thinking it all over I decided to abandon tarred felt and use a better packing than leaves above, for I realized that my bees had not wintered as they should winter for three years. That I must be prepared for a severe cold or mild and variable winter was evident.

Forthwith last autumn I left the majority of the hives two-story with most of the stores above. A deep super was packed with clover chaff, *not leaves,* and the cover put on. The entrances ranged from 3/8x6 to full width; and in some cases 7/8 by the width of the hive was left. The results seemed in favor of a sealed cover over the bees. A well-propolized quilt came next best, and a loose burlap was the poorest. I prefer 3/8 by full-width entrance for two-story single-wall hives. The 7/8-inch entrances were not so bad, except that the mice got in where they were not screened. We had severe weather, prolonged cold, with the thermometer often 16 to 20 below zero. Some of the outdoor colonies packed as above showed signs of dysentery, it is true; but many wintered perfectly. The importance of good packing should be impressed; as where hay, leaves, etc., were used in place of clover chaff or similar



The Cavanagh tenement winter case.

packing the loss was heavy. Bees had to be kept warm and dry above by the use of proper packing and a tight board or well-propolized quilt.

Out of the relics of my Michigan experience I revived the Bartlett packing-case and made some improvement in it. The colonies wintered perfectly. Few stores were consumed and the bees were quiet and bright, instead of being filled by eating heavily. Moreover, the honey was clean and dry. The bees can not clog the entrances, and they will not be tempted to fly on cool bright days, nor will they need a flight. Neither mice, cows, nor hogs can do any damage. These cases will cost about $4.00 or $5.00 each, or from $1.00 to $1.25 per hive; but the saving in stores and bee life pays for them in a season or two. Besides, they made an excellent place to store packing material in the summer.

Strong colonies of young bees having good store room above the frames to pass freely will winter if there is heavy packing above; but it costs honey to do it, as well as bee life in such a severe winter as the past. Therefore I have resolved to pack all colonies generously hereafter, not only above but around the sides, and to use a sealed board or a propolized quilt with space above the frames. The entrance will be ⅜, and liberal in width; and most of the colonies will be in two stories; and I intend to winter the greater share of my colonies in packing-cases such as I will now describe.

The illustration shows a perspective view of the winter case with a side and end cut away to reveal the floor plan. A framework of 2x4's crosswise, and 1x4's endwise on edge forms a four-inch space for dead bees. It will be apparent that the regular bottom-boards are omitted, as the hives rest directly on the framework. The four hives are packed closely except for one inch allowed between ends on the middle 2x4, which makes packing somewhat easier.

The entrance construction is quite clear. The bees, in leaving the case, must pass through the entrance on the 2x4; thence upward to the entrance in the end of the case. From limited experience I am inclined to believe this a good feature, both in breaking winds and shading from bright sunlight. The end cleats are on opposite sides—one for the cover to slide on, and one for the hive to rest against and hold the packing away from the entrance.

The side packing comes clear to the floor, and may be any thickness desired. Ours allow three inches on sides, one inch on ends above the cleat, and ten or twelve inches above. The case is made of ⅞-inch hemlock, shiplap, with the roof covered with prepared roofing. The covers have a narrow cleat on edge which telescopes over the case, making it absolutely mouse-proof.

The bottom is placed in position, then the hives are set on it; and, lastly, the rest of the case is set up and the packing put in. This is not a small item in favor of this construction over the cases into which the hives have to be lifted.

Hebron, Ind.

[This winter case is very similar to the one used by R. F. Holtermann with such satisfaction last winter and the winter before. See GLEANINGS for Nov. 15 of last year. Other Canadians, including our special correspondent, J. L. Byer are using it, and more, we understand, propose to adopt it. See articles by Mr. Greiner and Mr. France on page 550 and page 554 of this issue.

We note that Mr. Greiner and Mr. Cavanagh seem to prefer sealed covers. Others prefer upward ventilation. Who is right? See editorial.—ED.]

HOW TO TAKE THE TEMPERATURE OF A HIVE

The Varying Rates Between the Outside and Inside Temperature of a Hive

BY BEN B. EDGERTON

I tried the temperatures of hives somewhat last year and the year before, and I found that one must be careful about the conditions, especially the lag in the temperature. By "lag" is meant the delay that a heavily covered body has in reaching outside temperature. Six inches of dirt and a foot of clover chaff ordinarily cause enough lag in temperature to save our potatoes from freezing. On this account it is hardly correct to take the temperature of a heavily covered hive after only about twenty-four hours of zero weather following a warm spell.

My bees are protected by a deep cushion over the sealed covers, most of the colonies being in four-colony boxes. I think it is a little more accurate to slip the thermometer under the cushion than to put the instrument actually inside the top of the hive. If the slight disturbance raises the temperature inside, the heat hardly has time to penetrate the ⅜-inch super cover before the thermometer registers. If the

instrument were inside it might register too high in some cases.

Winter before last, after an outside temperature of 26 degrees for two weeks, and last winter after nine days of zero, I found the tendency of the thermometer under the cushion was to register around 45 or 46 degrees in each case, the lowest temperature I noticed being 38 degrees. Two days later, the outside temperature being 14 degrees, I found, out of five colonies, two that registered 45 degrees and 44 degrees respectively; two 37 degrees and 34 degrees, and one only 28 degrees. Less than two weeks later I found this latter colony dead. The bees starved from being unable to reach the stores. The colony was surprisingly large considering the fate that overtook them, and they were protected fairly well.

Of course it is not safe to make any general conclusion from just a few trials; but until we learn more I suggest this: That 45 degrees is about the normal temperature in the upper part of the hive. If it is much warmer than this, it may be an indication that something is disturbing the bees. If much colder, it is a sign that the colony is took weak for the frames it occupies, or else that the wind hits the hive too hard. If the temperature is below freezing, the bees are in bad shape.

With reference to a well-protected colony keeping the temperature in their hive only one or two degrees above the outside air, I will say that, in some of the hives, the temperature was 43 or 42 degrees above the outside air on a day when it was 4 degrees above zero near noon, following a morning when it was 16 degrees below. Even the poor starving colony that was making its last stand against death kept its hive about 14 degrees above the outside air.

Hicksville, Ohio.

[The point is well taken. The reader will see that we took this into account—that is, "lag" of temperature of a hive, when we reported temperature readings taken last winter. See page 78, Feb. 1, and page 125 for March 1.—Ed.]

WINTERING OUTDOORS IN SINGLE-HIVE WINTER CASES

BY P. W. RICHARDSON

The method of outdoor wintering which I have followed for the past four winters has been so uniformly successful that I thought perhaps there might be suggestions by which others might profit. The wintering problem is not solved, nor will it be easy of solution in our changeable and uncertain New England climate. During a mild or average winter, outdoor colonies fare best; but in the severe winters we sometimes have, any reasonably good cellar would doubtless give better results.

The essential feature of this method is a separate case for each hive, of sufficient size to allow four inches of packing on all four sides and twelve inches on top. There is no protection on the bottom. These cases are made of rough lumber one inch thick, with a cover of the same material, that telescopes down two inches all around. It is covered with tarred roofing paper, and there is sufficient slope to carry off all water. Two boards, just wide enough to allow the empty case to be set down over the hive with the cover off, are nailed on the bottom of each side. A loose board of the proper width is used back of the hive to prevent the packing from falling through, and the front board is three inches above the entrance. The super covers are sealed down tight, and no provision is made for ventilation of any kind anywhere except at the entrance, which is the regular ⅜ by 6 furnished with the hives. I have never been able to scrape out more than a cupful of dead bees during any winter from one colony, and there have been two occasions when I was satisfied that the bees came out stronger in the spring than when closed up in the fall.

I like to feed as late as is consistent with good results, so about Oct. 1 the colonies are looked over, and fed or united as occasion demands. I make sure that they are all strong, and that the queen appears vigorous and lively.

About Nov. 1 the hives are set on winter stands 14 inches high, to keep them out of the snow, and the winter cases are put on and packed tight with hay or straw. During the winter, if the thermometer reaches 46 in the shade, and the sun is shining, the bees come out and fly. Some of them fall in the snow and are lost, but never enough to do any harm, as they are mostly old bees.

But it is in the spring that the value of this method is most noticeable. As soon as the snow is gone, and it is certain that the bees will fly about every day, these winter cases are taken off and the hives set down on their summer stands, which are 3½ inches high. These summer stands are leveled with a spirit-level from front to back, sidewise and diagonally, so that all foundation will hang straight, and there are not apt to be any cold corners in supers. As the hives are changed they

are looked over and given clean bottom-boards, follower-boards, and frames of honey, if short of stores. At this time it is not unusual for some of the frames to look as if there had been water on the top-bars during the winter, but I do not regard a little water as a calamity, for brood-rearing probably begins late in January or early in February, and if the bees do not use this water for brood-rearing, where do they get it?

The hives are then wrapped in newspapers, a small chaff cushion laid on top of the sealed cover, and a telescope K cover pushed down over all. They are left in this way until settled warm weather. The entrance is usually enlarged to ⅜ by the width of the hive soon after setting on the summer stands. Instead of being troubled with spring dwindling, the trouble is just the other way, for a good deal of attention is required for a time to control swarming and to prevent increase.

Mast Yard, N. H., Jan. 17.

PLENTY OF PACKING AND A CONTRACTED ENTRANCE

As Opposed to Tarred Paper Winter Cases and a Large Entrance; Wintering in Observation Hives

BY E. C. BRITTON

I read with interest the article by Mr. Arthur C. Miller on hive protection, Feb. 1, p. 73, also the other side of the question by Mr. R. F. Holtermann, p. 74, and Mr. J. L. Byer, p. 76, and as I live 28 miles from Providence, R. I., the home of Mr. Miller, and have made a number of experiments with observatory hives having glass sides, rear and top, I wish to add a word in favor of the best possible protection for our bees.

We have from twenty to thirty hives which we winter out of doors. They are protected by boards on two sides, and by a roof which is waterproof.

We pack these hives all around to a thickness of between eight and twelve inches with pine needles, leaves, or hay, and contract the entrance to ¼x5 inches.

Last winter I uncovered one of them in order to see how the bees were getting along. They looked well; the glass was clear, for they had an observatory cover and feeder combined, and were lively, and their number seemed the same as when they went into winter quarters. I left off the protection, wishing to see what would happen. In a short time moisture began to gather on the glass, and great drops of water hung ready to fall on the bees and comb. I put on a heavy black tar paper, folded so as to fit closelv over the hive, and awaited the result.

On removing this cover, a few hours later, I found that the moisture was still there. I again put on the same paper cover and kept it on the rest of the season, and the colony went to pieces and was no good that year. I unpacked another hive at the same time, which I treated by the other method. As soon as the moisture appeared I covered the hive again with leaves, hay, or pine needles, whichever was handy at the time, to a depth of a foot on the sides, top, and bottom. Each time that I inspected the hive after the extra protection was given, it was in perfect condition. I have frequently examined hives in different near-by towns; and when additional protection has been necessary, and has been given, the colonies have always been benefited.

The hives (which are all observatory), from which we get the most honey are located in the tower and attic of our houses the entire year. The entrances are so arranged that the bees can have free access to the outer air at all times, but can not enter the room. In the tower there are five hives where the temperature remains at about 50 degrees the whole winter, and we get from one hundred to two hundred pounds of honey from each colony every year. We do not have to give any extra protection to these hives during the winter. In the attic we have three colonies where the temperature at times goes down to freezing.

Each hive is protected during the winter by a heavy woolen cover, tied firmly with a string. For five years the entire lot of hives of bees, both indoors and out, have wintered perfectly—no moisture, glass clear, and the bees quiet, and they have built up early and strong every spring. We get the most honey from the colonies indoors. Those outside we use for breeding.

Canton, Mass., Feb. 13.

The Lesser Wax-moth

I have some very nice honey that I have taken from my bees this season, but have discovered that there is a miniature worm or moth that has made its way to some of the boxes. I should like to have your opinion as to how it should be cared for after it is taken from the hive.

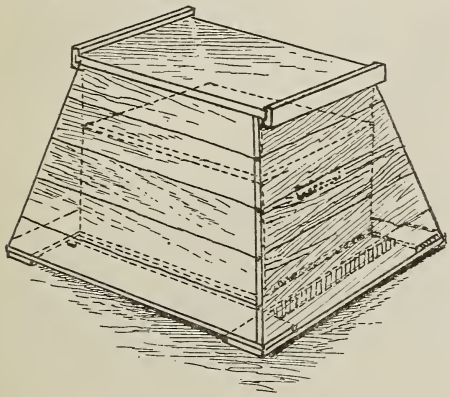
Thompsontown, Pa. W. A. RUMBERGER.

[It is apparent from what you say that you have the lesser wax-moth in your honey. This should be fumigated with the fumes of sulphur in an enclosed room, or, perhaps better, use carbon bisulphide. This should be placed in a small dish above the supers where the honey is placed; and as it evaporates the fumes settle down through the honey and kill the pest. For particulars regarding the lesser wax-moths, see ABC and XYZ of Bee Culture, under head of Bee-moths.—ED.]

Heads of Grain from Different Fields

A Packing-case for Winter which Fits the Regular Hive-cover

Last year I used a winter case which is very inexpensive, as it does away with the usual extra cover and bottom-board. The box is six inches larger all around at the bottom edge than the hive, and tapers up to a point about a foot above the hive, where it is small enough to take the regular cover. If made any shallower it comes too close to the top edge of the hive and prevents pouring the packing around the hive. To close



the opening below I make a frame of six-inch stuff the same size inside as the outside of the hive. When ready to pack I slip the hive forward on its bottom about one inch, and then slip the frame down till it rests on the bottom at the front and back. The packing-box rests on this frame; and if the box is held in position until some of the packing is poured around the hive it will not move off its frame afterward.

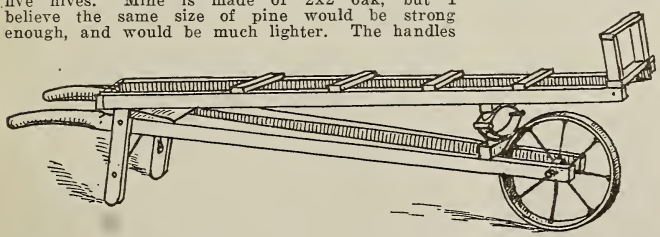
If the box is made of half-inch matched lumber it will not leak; but if made of plain lumber it should be covered with tar felt.

Palermo, Ont. H. A. SMITH.

[This arrangement here shown will be satisfactory provided a full foot of packing is used on top, as shown in the drawing; otherwise there would be too little top protection.—ED.]

An Extension Wheelbarrow in Use in the Apiary

The illustration shows my "bee automobile," which I made myself. It is long enough to hold five hives. Mine is made of 2x2 oak, but I believe the same size of pine would be strong enough, and would be much lighter. The handles



should be wide apart, as then it handles much easier.

For a spring I use one from a lumber wagon seat. It should be a good stiff one. This is very handy in putting bees in and out of the cellar, as it carries them very easily. It is also very handy in carrying empty supers to the yard, also in returning filled supers to the shop.

A. T. DOCKHAM.

Eagle Bend, Minn., May 14.

Sealed Covers Unsuccessful for Single-walled Hives During a Cold Winter

Colonies packed with sealed covers are wintering disastrously. But first of all let me tell you how I packed them. I selected two colonies which heretofore had wintered almost perfectly with scarcely any mortality. They were exceedingly strong in bees and brood late in the fall, as I had fed them granulated-sugar syrup until late in September; and when I packed them the last week in September they had an abundance of sealed stores and plenty of *young* bees, and the queens (of current year's raising) were all right. I placed a super cover over the brood-chamber, and over this a full-depth hive-body filled with woolen rags, dry leaves, sawdust, and newspaper on top of all, and then the cover. Next I put several thicknesses of heavy cardboard around the hives and fastened it securely with tacks and string. I next reduced the entrance to 6 inches by ⅝, and left them with my other colonies to winter over until spring. You will understand that I winter my colonies out of doors on their summer stands.

The first two weeks in January we had zero weather, and one morning 11 below, with considerable snow. When the cold had abated somewhat I took a look at my colonies in order to see how they stood the intense cold, and compared the number of dead bees in each. I raked over a quart of dead bees out of each hive one evening, and the following day just about as many. At that rate of mortality, they would soon have been entirely depopulated, so I immediately removed the super cover, and, throwing a piece of woolen cloth over the brood-frames, I put back the supers and filled them with cork chips. I then looked to see how the other colonies fared, and was surprised to see very few dead bees on the bottom-boards. By means of a hooked wire I raked, on an average, only about 30 or 40 bees from each hive, and these were all packed with absorbents over the clusters. The entrances were of the same size—6 inches by ⅝.

Since replacing the sealed covers of the two colonies in question with absorbent packing there has been *practically no mortality*, and therefore I think that sealed covers are not a success. Theoretically it sounds very well when it is claimed that the moisture in the hive collects on the sides and runs out of the entrance in the form of water. In zero weather it does not; and since the interior of the hive is but a few degrees warmer than the outside air it must necessarily collect just outside of the cluster, and overhead especially, since this warm moist air rises as a matter of course. It can not pass *through* the wood, so it collects there in the form of ice and frost. This icy covering is not conducive to good wintering.

I forgot to mention that these two hives were *soaking wet* inside, and the dead bees I raked out were saturated with water, and partially covered with ice and frost. It is very evident that the moisture from the bees congealed as fast as it emanated, and that the cluster was surely enveloped in an icy covering. Of course the conditions this year were abnormal and we had zero temperature for about two weeks without interruption, which in this locality is a rarity. I am fully convinced that sealed covers in severe winter localities are a failure, but in milder climates they may be very satisfactory. But for the best results in outdoor wintering nothing can compare with absorbent packing. Two years ago the mortality in wintering in this locality exceeded 75 per cent, and one beekeeper near me lost 17 out of 18 colonies; but I had nine packed with porous packing over the cluster and lost not a single colony. No more sealed covers for me.

THE IMPORTANCE OF YOUNG BEES IN THE FALL.

I have found that a colony will winter perfectly, and be in the best possible shape in the spring, if brood-raising is encouraged until late in the fall. The hives will then be stocked with young bees, vigorous and active, which are the very life and backbone of the colony. My best colony, No. 2, has even now, Oct. 21, six frames of brood in all stages, the result of feeding about a pint of sugar syrup

every other day. Spring stimulation (which I think is a grave mistake) will be unnecessary, as the bees will have an abundance of stores, and young vigorous bees to convert these stores into brood just as soon as pollen is available, which, in this locality, is about Feb. 10. Pushing a colony to its utmost by feeding, after a winter's siege, in its somewhat weakened condition, is folly, and always ends in a protracted lull in brood-rearing just as soon as the feeding is stopped, and often in a supersedure of good queens at a time when every day counts.

Cincinnati, Ohio, Feb. 6. ALBIN PLATZ.

Sixty Cents' Worth of Syrup Saved Colonies that had Produced $15 Worth of Honey

Publishing a weekly newspaper for a living has been my occupation for several years; but during this time I have had much experience with bees. I have been associated with those who have learned much about the business, and for several years I have kept from twenty-five to fifty colonies. While my bees have paid me well for the time I have given them, they have also given me the opportunity of learning the business—that is, what I know about it. Three years ago I began to make increase, and now I am running 175 colonies in one yard, and am giving about half of my time to them during May, June, and July.,

In 1911, 110 colonies yielded over 7500 pounds of bulk comb honey, which was sold at 20 cts. a pound. I live in the sourwood belt of Piedmont, North Carolina, and it is no trouble to sell this fine honey at a good price. After the honey harvest was over, which was the last of July, I turned my attention to the newspaper and paid almost no attention to the bees until the time came to prepare them for winter. They had increased until there were 160 colonies in the yard. When I examined them in October I found them so poor that it was distressing. Strong colonies—that is, strong in bees—were almost entirely out of honey. Many had less than a pound. How to feed so many, and do it at once, was a problem. I had a local factory make fifty boxes the same size as a brood-frame, and as wide as three frames. Then I removed three brood-frames from each colony and gave one of these new boxes to each colony that I expected to feed at once. With boxes ready I would pour 300 pounds of water in the extractor and mix 300 pounds of granulated sugar with the water. Just before night I poured ten pounds of this sugar syrup into the feeders, and by the next afternoon it would all be taken and stored in the combs. After giving each colony 20 pounds of syrup I removed the feeders to other colonies and thus the whole yard was fed. It was with some fear that I waited to see how the bees would come out in the spring with so small a quantity of feed; but, to my delight, when they were examined the first of March of this year I had 155 colonies in what I consider fine condition, and every one of them will make strong honey-gatherers.

This experience has proven to me that there is no reason why any one should let bees die for want of food. Less than sixty cents' worth of feed saved strong colonies, some of which had given me as much as fifteen dollars' worth of honey; and why should I let them starve when sixty cents would save them?

BEE PARALYSIS.

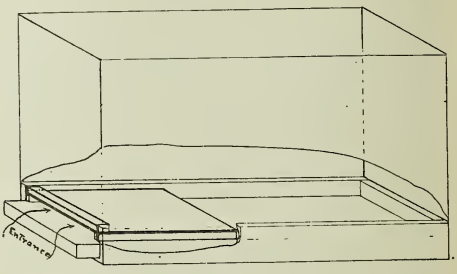
Three years ago I noticed two or three colonies that failed to build up strong. I observed that the bees would crawl about the hive, and that they were unable to fly. I read up on all the bee diseases, and informed myself as best I could from all the literature I had. It was very evident that there was paralysis in my yard. That season I paid but little attention to the weak colonies, and they failed to build up. In the fall, several died. Last year the trouble showed itself in as many as a dozen colonies or more. Then I got busy. I bought a pound of sulphur and dusted a tablespoonful on the combs of brood and let it fall into the cells, regardless of the statement that this would kill all the unsealed larvae. In a week I could see an improvement in conditions. Mature bees would appear to be well, and a second treatment with sulphur stopped the old bees from crawling about. But after a few days I noticed that the queen's eggs failed to mature, and that the brood was not in solid sheets. From the observation I made, I concluded that there was also trouble with the queen. Then I placed a young queen in every colony where the disease appeared. After the sulphur treatment and requeening, these sick colonies built up, and many of them made as much as a hundred pounds of surplus honey during July, and without any help from other colonies. And the beauty of it is, that this spring these same colonies that were in such bad condition last season are permanently cured, and among the best I have in the yard. This spring the trouble has shown itself in a few other colonies, and every one has yielded to this treatment.

In a few cases the colonies recovered slowly, and I gave two or three frames of hatching brood from a strong colony, and thus strengthened the working force, and all went well. My experience with as many as twenty colonies of sick bees has been that a tablespoonful of sulphur dusted over the combs, and a new queen, puts the colony "on its feet" again.

Mount Airy, N. C., June 21. J. E. JOHNSON.

A Cleated Thin Board Slid into the Entrance to Act as a Storm-door

While looking over back numbers of GLEANINGS I came across the description of a double hive-bottom for winter protection, by Joseph F. Rose, Jan. 15, 1908. I have a similar but much simpler device which can be applied to any hive having a drop bottom-board, without necessitating any change thereof. The advantages claimed for the double bottom-board were: Prevention of cold drafts; bees flying out on sunshiny but cold days; stoppage of



the entrance by dead bees or ice, and spring robbing; to which I would add, promotion of late and early brood-rearing. All these advantages go with what I designate a winter entrance-board, which is simply a thin wide board suitably cleated to preserve a bee-space above, and an entrance underneath when pushed into the usual ⅞-inch entrance opening between the bottom-board and hive-body.

I make these boards of red-cedar shingles (which come very wide), planing them to ⅛ inch by hand. The top cleat across the front is ¼x⅞ inch; the end cleats are ⅜x½ inch, all fastened with thin wire nails clinched. I use two different sizes, one 4 inches and the other 8 inches wide. The smaller one is put in when the nights begin to be frosty, and is replaced by the 8 when warm days are scarce. The 8 is left in place until the bees are seen fanning in the middle of a warm day in spring; then the 4 is substituted, and left until settled warm weather. These boards being put in place late in the season are not glued fast, and may be withdrawn at any time to rake out dead bees.

I am using this season two inches between the bottom-board and hive-body in conjunction with the winter entrance-board, to secure space under the frame for clustering early in the winter; also ample space for dead bees, better ventilation, and as a further preventive of excursions in cold weather. I find these rims useful during the season when introducing queens from mailing cages, for top feeding, and wherever space is wanted above or below for experimental purposes. Each rim has a spur (the point of a wire nail) set exactly in the middle of each long side, so that, when placed correctly and pressed down on the

bottom-board body, or super, it does not slip about. The rim is placed with the spurs always on the under side.

Hoboken, N. J. C. D. CHENEY.

[At one time we thought there might be some advantage in making an obstructed entrance of some sort. The various devices that we tried to prevent a complete wind sweep did more harm than good—bees were confined, and proper ventilation was not secured. Colonies with obstructed entrances were either weak or died outright, while those with free entrances came out in good condition.—ED.]

Rock Candy a Failure for Feeding

I fed my bees rock candy last winter. One cake of candy was too hard. This the bees could not eat at all, so they starved. The other cake was underdone to the extent that drops of syrup would form on the under side of the cake after standing a while. This the bees ate; and if they had had another cake when that was gone I could have saved them. The colonies I lost cost me $8.00; but I would not take that much money for what I learned.

Next winter I will make a dough of pure honey and sugar, then I will make shallow wooden boxes of ⅜ stuff—2 inches deep and 12 square. I will put on the stove a wash-boiler containing a buckket of water and a 15-cent cake of paraffine. Just as soon as the paraffine is melted I will dip the wooden trays in the mixture a few times until they are coated inside and out. The trays should then be filled and set on top of the brood-frames. After bridging over the trays they should be covered with some kind of thick paper, and then put in the packing—the more the better. Such colonies will winter sure. I would not advise any one to try to winter bees on rock candy; for even if they eat the candy there is likely to be some of it wasted—by the small particles falling down between the frames.

Jonesboro, Ind. C. A. NEAL.

[If you can feed syrup in October so that the bees will store it in the combs we are quite sure you will find it not only less work, but more satisfactory in every way. We would advise the use of candy only when the stores have run short during cold weather when syrup can not be had. —ED.]

A Plea for Cellar Wintering

A great deal has been said of late in favor of outdoor wintering of bees, and we rather think the editor favors that method for us Northern beekeepers. Of course it is taken for granted that outdoor wintering is all right for warmer climates. My own experience is that here in Pennsylvania cellar wintering is much to be preferred—first, because it requires less labor and fewer stores; and, secondly, it is surer to bring the bees safely through our long rigorous winters. For the past eight years we have wintered our bees in our house cellar with uniform success, never losing a colony unless it lacked stores or bees when put in in the fall.

Last winter was the coldest for 40 years in this locality, and the temperature in this cellar was almost to the freezing-point for days; yet we lost not a colony except one that was queenless for a long time in the fall and contained only old bees.

Our cellar is 22x28 feet, built of small flag or field stones and mortar, all except 18 inches on top, which is laid with rockface split stones. A drain is under the entire wall leading out to a near-by ravine. The adjacent soil is clay; but the cellar is always quite dry, but not too much so for a good vegetable-cellar.

A summer, or beam, passes through the cellar lengthwise, supported by two heavy posts resting on stone pillars. Between these posts our bees are stacked without any preparation except provision for sufficient stores. We like to have the hives in the center of the room, as there is less mold there, owing to the better circulation of air. As soon as the buckwheat flow is over, the supers are removed, as that is the last honey-yielding plant that gives any surplus. The covers are put down on the brood-chambers, and the bottoms are reversed from deep to shallow entrances. This precaution is for the purpose of keeping out mice. The deep side of the bottom-boards would be better than shallow in the cellar if it were not for mice getting in and chewing up combs.

As soon as settled cold weather comes on, the colonies are carried into the cellar and stacked, and that is about all there is to it. There is no fussing with packing and paper covers, etc. We simply carry them in and carry them out again in the spring. No quilt or mat should be used on top of the frames while the bees are in the cellar. The bee-space between the cover and top-bars should be entirely free for the easy passage of bees over the tops of the frames. In fact, we long ago discarded all mat or cloth covers on brood-chambers. They are an intolerable nuisance. We use oilcloth covers on top of section supers only.

All around this cellar are bins usually filled with potatoes, apples, and other vegetables; yet the bees have always wintered successfully.

If a warm day comes in February or March we carry them out for a fly, remove the dead bees from the bottom-boards, and return them until settled warm weather.

Summerville, Pa. W. P. KEEFER.

[Where there is a perfect cellar, no plan of wintering is so ideal; but if the conditions in the cellar are not right, or in locations where the winters are open with comparatively short stretches of cold weather, the outdoor plan is the better. There is a great difference in cellars. In some, where conditions seemed to be all right, we have lost a good many colonies.—ED.]

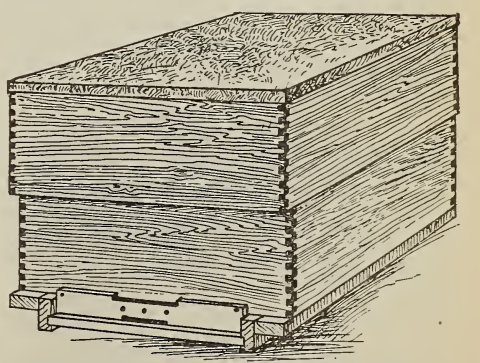
Bees Wintered Better Packed in Paper than in Wooden Cases

I read in the Feb. 1st issue with much interest the discussion between J. L. Byer and others in regard to winter cases. Especially was my attention called to Mr. Byer's opinion of black paper cases for protection, because at the time of the discussion part of my bees were in paper cases.

I can't number my colonies by the hundred, but I keep bees in the back of a city lot for relaxation, pleasure, and profit. I have my hives set in pairs about a foot apart and three feet between the pairs. Heretofore I have used large knock down wooden cases containing one pair of hives, allowing two inches of chaff under the hives and 10 inches on all sides, and 12 inches on top. I have had splendid success wintering in these cases; but last fall I had eight hives more than I had cases for. These I packed in paper. First I took old newspapers, covered the cases all over, about 25 sheets thick, then covered this with table oilcloth, and on top of this I put black roofing paper.

I had no trouble with bees flying out when too cold, neither did they freeze inside, and sweat, as some report. But they wintered better and came out more vigorous than the ones in large wooden cases; and the two that I lost out of 22 were in wooden cases.

Urbana, O. O. J. JONES.



Holtermann's entrance-contractor, mentioned on page 75, Feb. 1.

Three Essentials for Wintering Outdoors

Last season the bees all over this part of the country got practically no nectar after June 20. In order to stand some show of wintering them I fed each colony about 25 lbs. of granulated sugar, commencing with a little stimulating feed for the purpose of keeping the queen laying as long as possible; and in October I gave them about all they would take from the Alexander feeder in one hour; and by November 24 I had them in fairly good condition, with plenty of young bees and good pure sugar syrup.

I then put them in a row several inches above the ground, packed leaves under between and on top of them until they were completely buried. Then I made a frame around them, well covered, and contracted the entrances to about ⅜x4, and bade them goodby until April 2, when I unpacked them, found one dead, seven fairly strong, four rather weak, and one queenless.

The fact that I lost just two out of 13 colonies, and in a winter when there was a lot of zero weather at that, makes me feel like promising that I will not lose that many any more. There are three things essential to perfect wintering of bees on the summer stands—namely, a young, vigorous queen; plenty of good food, and a good packing of leaves.

Indianapolis, Ind. J. F. KIGHT.

Cellar vs. Outside Wintering

What are your reasons, Mr. Editor, for saying you know that it takes much less skill and time to winter outside? In this locality it is quite the reverse, as it requires an *expert* to prepare properly a lot of bees for successful outside wintering; and a lot of time and work, aside from a large expense for outside cases. But anybody can carry a swarm of bees into the cellar, remove the cover and oilcloth, and spread a piece of burlap over the top of the hive. The bees, too, will winter just as well as those outdoors, if not better, and on about half the amount of stores. I am 58 years of age. This fall I put 131 colonies in the cellar alone in four hours. I am of the opinion that it would require a week to prepare them properly for outside wintering.

Union Center, Wis. ELIAS FOX.

[You undoubtedly have a cellar that is ideal. If one has but little experience we think he would have better success in wintering out of doors than if he attempted to create ideal conditions in a cellar where the ventilation or temperature is not right. Perhaps we did not properly explain our former statement to which you refer.—ED.

An Empty Super Placed Over the Brood-chamber for Packing Material

I have a way of packing bees for winter that I think is worth telling. I place an empty super over the brood-chamber, and in it put three or more section-holders spaced several inches apart. I then spread burlap sack, or any other cloth, over the bottom of the super inside, and pack dry autumn leaves until it is filled. This plan keeps the bees warm, yet allows ventilation through the leaves. At the same time, the bees have room to pass over the top-bars from one comb to another. We use no packing around the sides of the brood-chamber in this vicinity.

Arkansas City, Kansas. W. L. POWELL.

No Loss Last Winter

My bees have always wintered on their summer stands. Some hives are packed in chaff and some in ground cork. The stores are mostly goldenrod and aster. Last winter was a record one for cold in this locality, but my bees wintered better than in any previous season for twenty-six years. There were no losses, and less than six quarts of dead bees and sweepings from 35 colonies.

Bowdoin, Me., May 7. W. L. MALOON.

Inverted Butter-plate Makes a Good Clustering-place

As my plan of packing bees for winter, given in GLEANINGS, p. 664, Nov. 1, in which I advised placing an inverted wooden butter-dish, holding about a quart, over the frames, as a clustering-place for the bees in cold weather, was criticised by some beekeepers, I will now report that, out of 78 colonies so packed, 75 came through our unusually long and severe winter in first-class condition, and the three that perished were found to be short in stores—pure neglect on my part. I have never before had stronger colonies at this season of the year.

ISAAC F. TILLINGHAST.

Factoryville, Pa., April 25.

Wintering Bees in the Cellar

I set my hives faced to the wall of the cellar, give full-sized entrances, and turn the covers bottom side up; detach the cloth cover from the frames near the back part of hive in order to give good ventilation, and never have any loss, with the exception of a few from dysenterv one winter. I attributed this to poor quality of stores or lack of stores.

Madison, Me., Feb. 28. W. G. SAWYER.

Cheap Concrete Blocks for Hive Foundations

For making hive foundations of concrete I use empty quart cans, such as old tomato-cans, etc., for forms. I use one quart of cement, two parts of clean sand, and five parts of gravel. When all are thoroughly mixed dry I add water while stirring constantly until it is quite soft. I fill the cans partly full of the mixture, and then put in any pieces of rocks that will go into the can, and pour in more concrete until the can is level full. After shaking them so that all air bubbles come to the top I set them in a level place for a day and a night; then take four to each hive, turn them bottom side up for the hive to rest on. When the tin rusts off the round cylinder of concrete is left.

Fremont, Mo. MRS. ALMEDA ELLIS.

[It is very important to mix thoroughly the concrete material *dry*, then wet it to the consistency desired. Your scheme of old fruit-cans to make the forms is excellent.—ED.]

Is there any Advantage in Placing Supers Below rather than on Top of the Brood-chamber?

Can bees be induced more readily to work in the super by placing the super below the brood-chamber for a short time? Is any bad effect brought about by such method? When an after-swarm is led off by a virgin queen, does the queen mate while the swarm is in the air, or will she, after the swarm is hived, leave her new home to make her wedding-flight?

Deerwood, Minn., July 27. WALTER G. WETZEL.

[There is no advantage in placing a super below the brood-chamber—in fact, rather a disadvantage. It should be placed on top the hive, where it is the warmest, because bees, in order to do good work, should have the temperature right for comb-building. The lower part of the hive, or next the entrance, is comparatively cool, and we doubt if comb-building could progress as it should, except in extremely hot weather. Putting a super beneath the hive might have a tendency to check swarming; but we believe that is all it would accomplish.

A virgin queen, when she goes out with an after-swarm, does not meet the drone unless the bees follow her on her mating trip, which they will do sometimes. Ordinarily the swarm seeks its new quarters; and after they are comfortably settled, the virgin queen goes out on her mating-trip.—ED.]

The Difference Between Golden and Five-banded Bees

What is the difference between golden bees and the five-banded Italians? What is the difference in the color? Do you think there are differences in the working qualities? Do you think the golden bees would suit where I live?

Meadow Creek, W. Va. ALEX. BENNETT.

[The golden Italian refers to extra-yellow bees, without reference to any number of yellow bands. The five-banded Italians refer to bees that have five yellow bands, and such are supposed to be extra yellow. Our own preference is, however, for the leather-colored Italians, because in our experience the extra-yellow bees are short-lived and inclined to be cross.—ED.]

Our Homes

A. I. Root

While he yet talked to the people, behold his mother and his brethren stood without, desiring to speak with him. Then one said unto him, Behold thy mother and thy brethren stand without, desiring to speak with thee. But he answered and said unto him that told him, Who is my mother? and who are my brethren? And he stretched forth his hand toward his disciples, and said, Behold my mother and my brethren! For whosoever shall do the will of my Father which is in heaven, the same is my brother, and sister, and mother.—Matt. 12:46-50.

Many times while dictating these Home papers I have earnestly prayed for wisdom and guidance from above. Especially this morning I feel like uttering a prayer something like this: "O Lord, help me to comprehend the *full* meaning of the beautiful text that stands at the head of this Home paper. Clothe me with thy Holy Spirit that I may make known to the multitudes who are following me the great truth and the much-needed truth brought forth in the words of our Savior when he said, 'Behold my mother and my brethren.'" It occurs that, in years gone by, I have heard adverse criticisms of this very passage. It probably came from the same skeptics who were trying to find fault with some of the words and doings of our Lord and Master. If I remember correctly, they said he had become so excited and set up by the wonderful miracles he was performing that he refused even to notice the mother who had nursed him and the brothers and sisters who had been his companions through childhood. It is only within about 24 hours that the full significance of this wonderful passage has been revealed to me—or perhaps I had better say, partially revealed; for all that is included in those five verses will, perhaps, never be fully explored while the world stands. Just now the world seems to expect that a man shall not only respect and reverence his father and mother, no matter *what* happens, but he shall remember the ties of brotherhood and sisterhood and relationship. If one of the family gets to be quite wealthy, public opinion, and, we may say, good common sense, say that he should look after his poor relations, and at least give them a helping hand. This is all right and proper. But let us push it a little further. Suppose some man who is high up in the world, and has authority—one, say, who has been given some high position in the State or in the general government of the United States; and suppose this person should begin right away to put his relatives into important offices, and give them big salaries. You may smile at this illustration when you remember how many times this has been done and is being done. Suppose this same man who is paid a handsome salary by the government to protect the interests of the people begins to manipulate politics and finance so as to "feather his own nest," or, if you choose, the nests of his particular friends and relatives. As you take the above into consideration I should not wonder if you would smile again. Let us now go a little further still.

Suppose the policemen of our great cities, and perhaps I might include some small cities also, who are employed to protect the public—the women and children—those who are unaccustomed to city ways and customs—the ignorant and untutored. This big policeman is supposed to be a *father* to all these unfortunates. He is appointed to see that every woman and child has a chance to live and have a "square deal" all around. Suppose a saloon-keeper begins to cultivate the acquaintance of this policeman, or, may be, the saloon-keeper who lives neighbor to him is on friendly terms. Suppose this policeman should hesitate to do his duty because of old acquaintance, or because the offender is an old acquaintance, or may be a relative. Let us now push the matter still further. Suppose a saloon-keeper agrees to give his friend the policeman five dollars a month, or may be, where he is doing a big business, five dollars a week, providing said policeman will look the other way when trouble happens in his saloon, or use his influence generally to protect him from arrest. Let me mention an instance of recent occurrence—or, instead of mentioning the incident, suppose I mention a few names: Lorimer; Judge Archbald; Judge Hanford, of Seattle; Police Lieut. Becker, of New York, and Rosenthal, who was recently murdered by the alleged connivance of the said Becker*, and Stephenson and Holstlaw. I presume I need not go any further. The trouble is these judges, policemen, governors, and (I wish to say it with reverence

*I might mention also from our own State of Ohio, Senators Diegle, Andrews, and Huffman. While going over the above names, that expression in one of our former Home papers comes vividly to my mind: "4700 *dirty dollars*—dollars that he did not need, and, in fact, had no use for after he got them." What an awful contrast between this spirit and that of the Master when he said, "These are my mother and my brethren"! There is no mention, I believe, in the Bible where Jesus ever had a dollar. In fact, he owned nothing. He once said, "The foxes have holes, and the birds of the air have nests; but the Son of man hath not where to lay his head." I have been told there is good evidence that the clothing he wore was supplied by thoughtful good women; and yet he in his poverty healed more pain and conferred more happiness on humanity at large than any mere mortal who ever lived. "He pleased not himself."

and respect), presidents of the United States, were biased by selfishness in using their influence for the benefit of the people. Instead of loving humanity, high and low, rich and poor, equally and alike, they love their friends who have helped them to get important offices, etc. Now, I am not expecting too much of humanity—at least I do not believe I am; for I suppose there has never a man lived, and perhaps never will live, who could say as Jesus did, as he stretched his hand out toward the multitude, "Behold my mother and my brethren." What he meant to convey was this: Every child of humanity on this whole broad earth is just as near and dear to me as my own mother, my brothers, and my sisters. Who is there living who can say as much? What would it be worth to our nation if we could have just a *few* such men in office? As I try to comprehend the great truth here with my feeble human intellect, my little prayer wells up, "Lord, help." Some of you may say, "Mr. Root, do you practice what you are preaching? Do you love the great wide world as you love your wife, the memory of your good mother, your boys and girls, and sons-in-law, daughters-in-law, and grandchildren?"

As I contemplate it this minute, that little prayer rings out again with additional emphasis, "Lord, help." At such times as this, when I consider my own frailty, I thank God I can say, as poor Peter did, "Lord, thou knowest that I love thee;" and I can add (thank God), "Lord, thou knowest that I am hungering and thirsting after righteousness every day of my life." Perhaps it comes by fits and starts; but I believe it is coming oftener and stronger as I pass the mark of threescore years and ten. You perhaps have recognized that these Home papers are taking a wider scope than they did years ago. Not only are the common people reading my pleadings for righteousness and fairness, but at least one or two millionaires who got started in beekeeping are giving me encouraging words and telling me to go on.

We are told, "Thou shalt love thy neighbor as thyself." And if you ask who is your neighbor I am glad to point you to that beautiful parable that answers that very question. If I understand it correctly, our neighbor is any one who happens to be in trouble, and who is needing help. He may be white or black, rich or poor, or he may live on the other side of the earth.* He is our neighbor still; and if he has fallen among thieves and is wounded, robbed, and "ready to die," if we belong to the Lord Jesus Christ we can not escape the responsibility resting on us. That man, though he be far away, is a part of humanity; and when Jesus said, "Behold my mother and my brethren," he meant it to include humanity throughout this whole wide world; and my impression is just now that the highest enjoyment and the greatest happiness one is capable of is along the line of our text and its teaching —that they are not only neighbors but brothers and sisters of the Lord Jesus Christ.

To illustrate the *difficulty* of climbing above human temptation, let me mention one or two instances. Years ago there was a shortage of coal here. It could not be had for love nor money. It was then almost *impossible* to keep our machinery going by buying expensive wood. We were on the eve of shutting down for want of fuel. A carload of coal stood on the track close by our boiler-room. The railroad company needed it to run their engines, and would not sell it at any price. I think I prayed over the matter, and finally our station agent came over and said something like this:

"Mr. Root, we appreciate what you have done to keep our Medina people busy during the cold winter with your factory and various offices. While that car of coal is not for sale, we have looked the matter over and decided to let you have it in order to keep you going until some more can be had."

You can, perhaps, imagine (or at least partly) how grateful I felt toward him. Now listen. With a sly twinkle in his eye he said:

"Mr. Root, would you be willing to put your name at the head of a paper recom-

*Right in line with the above I might mention that the world is just now getting stirred in regard to the cruelty exercised toward the natives in Peru, who are gathering rubber to make our automobile tires. See the following, clipped from the Chicago *Advance* for Aug. 8, they copying it from the *British Weekly*:

"At the very time when the words 'Great rubber boom' were displayed on London posters to tempt greedy investors, the poor Indians of the Peruvian forests were dying in agony. The full responsibility for these crimes must be placed on the government of Peru. By failure to punish the evildoers individually and collectively, Peru will forfeit the right to exist as an independent republic."

I wish to call your attention to the closing sentence—who is to bring this about? If I understand it, the responsibility rests on the civilized and Christianized nations of the earth—the United States standing, if I am correct, in the forefront. Is not the time coming when the spirit of the master shall leaven the whole lump of humanity, so that no more slavery, barbaric cruelty, nor suffering from starvation and hunger, shall exist *anywhere* on the face of *this whole wide earth*? The sentiment of our text will bring it about, and it is the only thing in this whole wide universe that will bring it to pass.

mending my father for postmaster? You get almost as much mail as all the rest of the town together. You are well acquainted with my father. Don't you think he would be as good a man for the position as we have in sight?"

There you have it, friends. What could I do under the circumstances? It happened in this case that his father *was* a very good man, and had been postmaster before, so he was well qualified for the duties. But suppose he had been a man wholly unqualified for the place—then what? None of us, especially those of us who profess to be Christians, like to be uncivil or unaccommodating. I suppose we often assent to some things that we can not exactly approve of, because it would be unseemly or uncivil to refuse.

In the incident quoted in regard to the Savior, we are not told that he stopped his work even to talk with his mother and family. In another place we are told the family remonstrated with him, and told him he was wearing himself out. They wanted him to take a little rest. How could he rest when he saw the suffering, the injustice, and the lack of a Christian spirit? Let me give you another illustration. If the incident did not exactly happen, something very much like it *has* happened or might easily happen.

A boy and girl were brought up together. The boy was the older of the two. While his sister listened to her mother's teachings, and became a pure sensible girl of lovely character, the boy fell into bad ways. Tobacco and strong drink carried him down and down until he got into the maelstrom of worse evil than either of the above. His sister went to a large city alone to meet a friend. She had an idea that her brother was in the same city; but as it had been a long time since he had written home she did not know where to find him. By some mistake her friend did not meet her at the station. She told a lady who happened to be there of her perplexity and trouble. This lady (?) said that, very fortunately, she lived quite near her friend, and would take her there in her own carriage. This woman whom I have called a lady was an agent of the white-slave traffic; and in a few hours this girl found herself in a strange place under lock and key. Along in the night the door was unlocked. This same woman ushered in a stranger, saying, "There is your girl, and I think you will find her all I represented her to be."

The brother and sister faced each other appalled, and I think the outcome was that they knelt down together and thanked God that it was *her own brother* who had paid quite a sum of money in order that he might meet the sister of *somebody else* instead of his own. Do you see the application, dear friends? Had this depraved and vile victim of evil associates loved *all* the nice-looking girls in the world, just as he loved and reverenced and respected *his own sister,* the daughter of the same sainted mother, how could he have consented to be a party to such work?

If all humanity or just a sprinkling of humanity could for a part of the time stand where the Savior stood when he said, "Behold my mother and my brethren," what sort of world would this be? What a difference it makes when we unexpectedly run into relatives or relationship!

At some gathering of a lot of men, I have forgotten where, some one stood up and told a story that reflected on all womankind. There was one Christian man in the lot who could not stand it. When the laugh and jeers had subsided he got up and said something like this:

"We presume the gentleman who told this story had in mind his own wife, mother, and sisters."

This little speech made a row. The one who told the story was ready to knock down the man who had insulted him. It seemed as if the great truth in the lesson before us could scarcely gain a foothold in his sin-stained heart and mind. May God help *us,* we who call ourselves *men*—may he help us every day of our lives to look on all womankind, especially in this present day, when they fill our busy streets attired in garbs that would rival the butterflies of summer—let me say it again, may God help us, who call ourselves men, to look on every woman, and to *think* of every woman in our inmost souls, as we would that other men should look on and think of *our* wives and mothers and daughters.

Just before dictating this Home paper a letter was put into my hand. There is one passage in this letter that shines out like a bright star. The writer says, "The greatest asset that ever comes into a man's life is the Lord Jesus Christ." Can't you—a great lot of you—say amen to it, and pass it along? By the way, I think I will give the whole letter, or a great part of it, for it is a bright and shining one, to a great lot of others as well as to your old friend, who is very likely, *at this very moment,* as your eye alights on these pages, praying that he may look over humanity throughout the whole wide world, and say with the dear Savior, "Behold my mother and my brethren."

My Dear Brother Root:—I have been thinking of you of late. In regard to the excellent work you are performing for our Lord, I must admit that I have been a poor Christian. I have been a heavy smoker and chewer, and a light drinker. I well remember being intoxicated once in my life. About three years ago I happened to pick up one of your GLEANINGS at a friend's house, and in looking over its pages I noticed your excellent work in bringing souls to God. Your notes at once took such a hold on my heart that I began to pray to our Lord, asking him to give me grace, and help me to abstain from drink and tobacco. At once I began to realize that I had heretofore been taking the "wide path." Thanks to our heavenly Father that I did visit this friend, for I have now no desire for drink or tobacco; have not touched it in *three years*, and, with the help of our Lord, I never shall. When I told my better half of my intentions she thought I would be back to my old ways in a few days; but now she is delighted with my reforming.

We have five children—from thirteen to twenty-five all in fine health, thank God.

When I began this "reforming" I thought of our Saviour, who fasted in the wilderness forty days and nights. In other words, he was preparing for the crucifixion, not because of notoriety—nay, it was a spontaneous affair from start to finish. Yes, it was the demonstration of genuine, Christlike love, that all the world might have *life*, and have it "more abundantly." No man has ever championed the rights of the people with such love and sincerity as did our Lord. Likewise, no one has ever had such a burden to bear; and most certainly the world has never had such a conqueror, though as yet I fancy that we are failing to practice the plain and simple teachings of our Lord. Our false pride is robbing us of our daily happiness. The sooner we can see each other as members of the human family, entitled to all the blessings of our heavenly Father, the sooner shall we have heaven on earth. Jesus Christ is the greatest asset that a man *can* have. This I have experienced, thank God.

How true the saying, for Jesus has said "Without me ye can do nothing!" Behold, the light of heaven is still shining, for "God is love."

Yes, brother Root, I feel like a new man, and am so happy because I know I am *with God* since I have learned to love my Saviour.

Now, brother Root, I feel that God inspired you to perform this noble and holy work, to bring us poor sinners to him. God bless you, brother Root. I hope to see you some day in the near future, hoping that our Lord will spare you many more years.

A. SANDERS.

Orange, N. J.

High-pressure Gardening

TRANSPLANTING AND CULTIVATION OF ALFALFA.

With the present outlook in regard to the importance of alfalfa on the farm, and to poultrykeepers in general, it looks as if every man, woman, and child who has even a little bit of ground should learn to grow alfalfa; and we might also say the same thing in regard to its near cousin, sweet clover. Alfalfa is now universally acknowledged to be one of the most important legumes, if not the *most*, for all kinds of farm stock, and great quantities of alfalfa meal are bought and used by poultrymen; and since it is being daily demonstrated that alfalfa can be profitably grown almost everywhere in the United States, and, for that matter, all over the world, it behooves us, each and all, to find out by experiment just how to grow it in our own locality. The *Dakota Farmer* has given us a recent article from the man who has been testing different varieties of alfalfa. I think the Department of Agriculture sends him out to collect seed of different varieties. We have space to give only the following extracts from the article:

We have been giving demonstrations of my new method of handling alfalfa by transplanting the one-year roots instead of sowing seed. May 2, 1912, we had a demonstration at the J. W. Parmley farm, Ipswich, South Dakota, and set plants at the rate of 100 per minute or 6000 per hour.

Demonstrations of this machine planting were first made on April 23 at Brookings, then at Redfield, Big Stone, Eureka, McIntosh, Lemmon, and Onida. I claim no originality for the method except that this is the first time where a machine has been used for transplanting alfalfa. In other words, I have combined an old Oriental method with an American machine. I took one of the standard transplanting machines, the Bemis, used for tobacco, cabbage, tomatoes, cauliflower, sweet potatoes, and many other plants, using a nine-inch shoe slightly widened at the back to allow more space for the alfalfa roots. This was done by a local blacksmith. Personally I have used the method since the spring of 1907, with the new alfalfas I brought from Russia and Siberia. Being trained as a horticulturist, I knew it would be the best way to make the most out of a small quantity of seed. Some of the reasons which occur to me at this time are:

1. The present method of using twenty pounds of seed per acre means fully one hundred seeds per square foot. Instead of that, every plant should have several square feet—the exact number no one knows as yet. The distance probably depends on the soil, elevation, and moisture conditions.

2. Alfalfa plants should be given full opportunity for maximum development. When set in the garden two by four feet, we get plants with over 500 shoots to the crown, and bearing as high as three ounces of seed per plant the third year, on plants transplanted the first year from seed. This means 1029 pounds of seeds per acre. The variety was the one secured in Russia, which I have named Cossack. From present prospects they will yield much more the present season.

3. The parasite vine known as "dodder" is a very serious menace to the alfalfa industry in a great many States in the West. It is extremely difficult to separate it; and when in the field it will soon ruin it. In Europe such fields are put out of commission by the government. But plants in hills could easily be kept clean.

4. The present methods of overcrowding the plants give an inadequate supply of moisture. Such plants are much dwarfed and can not form the long tap-root necessary to endure drouth.

5. If the plants are raised in thoroughly inoculated soil, every plant will be perfectly inoculated before setting it. This is of itself a great advantage. A farmer can see the nitrogen-gathering bacteria nodules with his own eyes.

6. The present methods of disking are extremely injurious. Such plants quickly become black-hearted, and the germs in the soil which produce decay soon obtain entrance. This crown-rot causes the plants to die early. I am fully aware that this is contrary to the present teachings of all the experiment stations, farm papers, and farmers' institute lectures; but I am satisfied that a careful examination of plants will show the truth of this statement. Alfalfa spike-toothed "renovators" would no doubt cause similar injuries. Alfalfa fields in the Orient are shown four hundred years old; but the Orientals do not mutilate their plants as we do. The heart

of an alfalfa plant should be held as sacred as the heart of an oak tree.

7. Alfalfa plants in this spring's demonstrations were set two feet apart in the rows, with rows three feet eight inches apart, so that the common corn-cultivator can be used. My opinion is that they should be given cultivation one way just like fodder corn. But perhaps check-row machines will be devised to make feasible cross-cultivation in early spring and after each cutting.

8. Alfalfa is a very poor fighter the first year, as the main strength goes below ground, hence it is often choked out by weeds which make more top than root. But by setting out a goodsized alfalfa plant, often as big as your middle finger, they can hold their own better against the weeds.

9. Over 1200 farmers are co-operating with me in testing these new alfalfas. Some report obtaining 7000 to 8000 seeds per plant the first year, and one North Dakota farmer reports raising one pound of seed in 1911 from eight plants set in the spring of 1910, which means 25,000 seeds per plant. The variety was the Cossack.

10. The plants should be raised the first year in good garden soil that is well inoculated. They may be transplanted in the autumn of the first year; but the bulk of them should be kept in outdoor cellars, such as are used for storing potatoes or trees, or they may be heeled in close together in furrows made with a plow. In 1910, at this station, on a piece of good garden soil 60 by 165 feet, 50,000 Orenburg alfalfa plants were raised, which is about 220,000 plants per acre. Probably much more could be done if no cut-worms, etc., appear. These were raised in drills, much like carrots and beets.

11. The plants are dug with a tree-digger, cutting under the roots, which is better than the plow, as the plants are easier to find. This implement is much used by nurserymen. Some of the cheapest cost as low as twenty dollars, and can be made by a good blacksmith. The roots are shortened by using a meat-cleaver on a block of wood, being careful to avoid bending the roots. It is better to shorten the roots than to bend them, so that the new roots, when they form, will go straight down. When set, the roots are covered entirely with earth, thus preventing evaporation until established.

12. I believe that the method will very greatly hasten the spread of the hardy Russian and Siberian alfalfas throughout the prairie Northwest.

On my alfalfa-planting tour I found in almost every place, men from Wisconsin and other States who had worked on these tobacco-transplanters, and knew that they are a commercial success in transplanting almost any thing in the plant line. We found that one barrel of water is sufficient for 5000 plants.—*Prof. N. E. Hanson, South Dakota State College of Agriculture and Mechanic Arts, Brookings, South Dakota.*

Please notice in the above the amount of seeds wasted when sown broadcast or even drilled in. This wasteful broadcasting would use a thousand seeds where only one is needed. Suppose a farmer should undertake to raise a crop of corn by such a wasteful method; and from what experience I have had with both alfalfa and sweet clover that came up in the garden, and thus secured the benefits of cultivation, I honestly believe it will pay to grow your plants and set them out and cultivate the alfalfa one way, and possibly both ways, just as we do with corn. The additional fact that you get rid of dodder and all other pernicious seeds is a matter well worth considering.

Now, shall we not, every one of us, get to work and grow some alfalfa in our garden in order to learn how? When you have grown a square rod successfully you are ready to grow an acre. Professor Thorne, of our Ohio Agricultural Experiment Station, recently told me we could get inoculated soil wherever we can find a rank growth of sweet clover.

Let me add, in closing, that good wholesome bread is now being made in California from alfalfa meal; and I suppose this meal is chiefly of alfalfa leaves. Now is the time to sow the seed, just after you dig your early potatoes, or where seeds have been removed from your garden; but whatever you do, give your soil a good liming. An excess of lime can not do any harm, and lime will always be a benefit, more or less, with sweet clover.

"WHO IS MY NEIGHBOR?"

In connection with the topic discussed in Our Homes in this issue is another matter. While discussing natural-hen incubators, page 391, June 15, I neglected to mention that the vender of the single sheet of paper, for which he charges $1.00, wrote me a very nice and kind letter, telling me how much he appreciated this department of our journal, hoping I would see my way clear to use my widespread influence in helping him introduce his discovery, etc. Now, I confess it is pretty hard to show up a man as a fraud when he writes so kindly; but where does my duty lie? Shall I favor this one individual who writes a kind letter, or should I protect the honest, hard-working people scattered all over our land? *Who* is my neighbor? I think I can almost hear the voices of thousands, telling me to go on exposing frauds. Well, just now I stand face to face with another thing along this very line. A good friend of GLEANINGS sends me a clipping from one of the poultry journals. It reads:

Blanchard's new system of corn raising increases your yield 10 to 25 bushels per acre.

Furthermore he says:

You can have confidential use of this information for $1.00; and as long as my supply lasts I will mail you one ear of corn, perfectly tipped, to show what I have accomplished. You can use this for seed. Book and corn come together. The biggest dollar's worth on earth.

W. J. BLANCHARD, Abington, Mass.

After I sent the dollar, another pleasant letter came, saying that the writer, years ago, took our journal, has the A B C book, etc. He says he very much enjoyed reading my sermons, etc. With the letter he sent four beautiful ears of corn, the kernels growing clear up over the tip. Now, inasmuch as friend Blanchard has treated *me* very handsomely, *perhaps* I ought not to complain, or at least not complain very much. The four ears of corn, on which he paid 21 cents postage, are very likely

worth a dollar for seed; but as a rule he sends only one ear of corn, and, as I take it, not always that.

What about the book on corn-raising? It contains just 12 pages. Nearly one-fourth of the book is devoted to advertising his strain of White Leghorn chickens. The rest of the book, as I understand it, is about as follows:

Most corn-growers are in the habit, when shelling corn for seed, of discarding the small kernels on the tip and the bad-shaped ones on the butt of the ear; and I think our experiment stations have recommended this more or less. I can not now recall just what Professor Holden says about it; but I think that he also rejects these small ill-shaped kernels; and it now occurs to me that I have somewhere seen it stated that these kernels on the tip of the ear should *not* be thrown out when planting, for the reason that, if you plant these as well as the others, you will be more likely to get a strain of corn with the grains all around the tip as thick as they can stand. Well, Blanchard's "new system" consists of saving and planting these tip and butt kernels, and *not* throwing them away; and this invention, so far as I can make out, is simply going contrary to what the experiment stations have advised. I am unable to find any thing in the entire book worthy of mention (aside from the above) that will enable the farmer to increase his yield from ten to twenty-five bushels per acre, as advertised. Once more, who is my neighbor—the man who writes kind letters and sends us advertising matter, or the 30,000 at least *mostly* honest people who subscribe for GLEANINGS with the understanding that I am expected to be neighbor to each and *all of them alike?* May God help me to do my duty, even though it may offend at times.

Health Notes

THE DEPARTMENT OF AGRICULTURE AND ITS RAID ON MISBRANDING, ETC.

I have just received from the United States Pure Food and Drug Commission a great heap of leaflets in regard to the work the Department of Agriculture is doing. Let me mention briefly a few of them:

Dr. Caldwell's rheumatism cure. This was alleged to be "A certain cure for acute and chronic rheumatism in all its forms. . . . This medicine cures by expelling the acids from the blood . . . restores the liver, kidneys, and skin to a healthy condition, . . . thus effecting a permanent cure."

The Department sentenced him to pay a fine of $200 and costs, particularly as the medicine contained 14½ per cent of alcohol, which was not mentioned on the label according to law. This amount of alcohol, like "Duffy's malt whisky," made the patient *feel* better for a brief time, but does not effect any such cures as claimed. This same doctor puts out anti-pain tablets, but does not mention the amount of acetanalid contained in them. This, too, was a fine of $200 and costs. A confectionery called "whipped maple cream" contained no maple sugar nor syrup whatever. This incurred a fine of $100 and costs.

"Wood's soothing syrup" is advertised to cure a lot of things, but it contains opium. The Department decided the circular was misleading and deceptive.

Absinthe is ruled out of our trade and commerce, being pronounced "dangerous to the health of the people of the United States."

In conclusion, I hope the Department of Agriculture is supplied with men and money to go through the entire list of drugs advertised, and for sale in our drugstores; and may they not "be weary in well doing."

THE TRUTH ABOUT POKEROOT.

Mr. Root:—I have been scanning your pages for some time, expecting that some one would present the facts about pokeroot; but as confusion of ideas seems to continue I venture some additional information upon the subject. The botanical name of the weed commonly called *pokeroot*, sometimes "skoke," is *Phytolacca decandra.* Doubtless it has other popular names in different localities. In the New England States I have heard it called "garget root," because it is believed to cure a disease of the udders of cows, which causes bloody milk, and is termed "garget." This plant grows almost everywhere in the United States east of the Rocky Mountains. Whether it flourishes on the western slope of the continent I have not informed myself. Avoiding technicalities it may be described as follows:

The stalk is thick and spongy, growing from three to eight feet high, and putting out many oval-shaped lance-pointed leaves about three to six inches long, one to four inches wide; smooth, edges slightly wavy, and a dull green color above and lighter below. The whole stalk is killed to the ground by wintry cold, and shoots up afresh every spring. The flowers are arranged along slender amber-colored stiff stalklets often eight inches in length that spring directly from the main stalk and not from the point where leafstalks occur. They are very small, white, sometimes tinted with green, each floret having its own tiny stem, about a quarter of an inch long, and five roundish petals or flower-leaves. The centers are pea-green.

The root is branched, fleshy, somewhat fibrous in texture, and nearly white on being cut open. The sizes range from that of a finger to that of the arm. The flowers drop off, leaving a string of beautiful purple berries the size of a whortleberry (huckleberry), which adhere firmly to their

stems. Their juice gives a rich magenta stain. They have a sickly sweetish taste which sometimes tempts children, and causes poisoning. Starving migrating robins often devour them and are intoxicated. With one exception the whole plant is poisonous, causing vomiting, purging, convulsions, tetanoid contractions, and sometimes death. Several fatalities have followed cooking the root with vegetables.

Properly used, the root is a most certain remedy for chronic rheumatism, but requires skill and judgment in its use. The first early pale shoots that come up in spring are harmless, and make a welcome addition to mustard greens. When the stalk itself appears they should no longer be used. The plant is so splendidly ornamental that it should be more frequently seen.—*H. A. Moody, M. D., Professor of Materia Medica and Therapeutics, School of Medicine, University of Alabama, Florence, Alabama.*

I presume the above is authority in regard to the matter; but I do not quite agree with the concluding sentence—that is, if I understand it correctly. In Florida we clip off the young shoots, including a part of the stalk where it is certainly the size of one's finger, and we have cooked stalks and all repeatedly, and have never noticed any ill effects; and with the tremendous growth it makes, especially on rich ground, I do think it is worthy of cultivation as a garden vegetable. Perhaps it may be well, in localities where it has not been used, to eat it sparingly at first until you are satisfied it produces no ill effects.

BREATHING THROUGH THE NOSTRILS, ETC.

In GLEANINGS for Dec. 15 you make mention of a nasal trouble you have. Like yourself I like to get as much of God's pure air as I can, not only around me, but *into* me, and that through the proper channel—the nose. For many years I tried hard to do all my breathing through the nose, and at last succeeded during the waking hours; but night time would find me sleeping with my mouth wide open, one or both nasal passages blocked up, and the top of my throat dry and distressed. Snoring, also, was often present. I tried various kinds of head harness to keep the mouth closed, but all to no purpose. They either required to be uncomfortably tight or else got shifted out of position. Some years ago a correspondent in the *English Mechanic*, replying to an inquiry, suggested a disc of celluloid to fit over or across the front of the teeth inside the upper and lower lips. I saw the point instanter, and made an oblong disc 3x1¼ from the rubber of an inside bicycle tube. After you cut it, just sandpaper the somewhat sharp edge; boil it for sanitary reasons; put it over the front of the teeth when you lie back on your pillow; and if you have cut a good fit you can not well breathe but through the nose, even if you wanted to do otherwise. When you rise in the morning, rinse it in water, and it will serve you for a year or two. Simple, is it not? Yet I can assure you $100 would not tempt me to throw it aside. By the by, several years' use has not cured me of the habit of breathing through the mouth in sleep, as proved on several occasions, when I have tried to do without it. This may seem a small matter; but I can assure you it is not. Millions are suffering all sorts of dental, nasal, throat, and lung troubles, to say nothing about annoying others with their snoring, because they are inhaling through the mouth. We live a good part of our lives asleep, so let us do it properly.

Will you be good enough to pass this on to friend Terry?

By some means the address and signature of the writer of the above have been lost—something that rarely happens in our establishment. We have been holding it for some time, hoping to get track of the author. When he sees this, will he kindly assist us in giving him proper credit? Of late I have had so little difficulty in sleeping with my mouth closed that I have not tested the invention of our good friend.

Poultry Department

DRIP WATER FOR CHICKENS; A CHEAP ARRANGEMENT.

I herewith send you a description of a watering-fountain that is a little the best of any thing I have ever used. Get a wooden faucet and bore a hole near the bottom of a candy-bucket of such a size as to fit in tight. Set it in the shed so it will keep cool. Place it on a box up from the ground, and set underneath it a small galvanized dish that is easy to keep clean. Fill it with water and turn the faucet so it will just drip. By fill the bucket once a day one will have a fountain that is cheap and easy to keep clean.

Okeene, Okla., July 7. S. J. SPAULDING.

I would add to the above that I would have the water-bucket or half-barrel indoors on the north side of the shed in summer time, and on the south side when the weather becomes cooler and sunshine is more desirable; and instead of a galvanized dish I would have one of the cheap porcelain dishes, as they are easier to keep clean; and in place of the wooden faucet I would have one of the little brass faucets (or air-cocks), such as we buy of Sears, Roebuck & Co., for 15 cts. each. I like the brass faucets better, because they do not need so much adjusting. The wooden ones swell and shut off the water unless you let it run so fast as to waste.

DUCKLINGS; WHY DO THEY DIE?

Would you advise me how to feed young ducks? Mine grow nicely for a time, then become unable to walk, and die. I have been feeding bran and shorts.

Orangeville, Ont. R. J. GALBRAITH.

Bran and shorts, or middlings (wet up) is all right; and when they get a little older, put in some corn meal; and water to drink must *always* be close by the feed. If you have been reading our journal you must have noticed what I have said about green food, especially lettuce. Give them all the lettuce they can eat, and I don't believe you will have any trouble. I suppose other green food will answer, but lettuce they seem to prefer to any thing else; and if they are not where they can get insects, etc., they must have some meat or some sort of animal food. Fresh meat from the butcher's, or bones ground up in a mill will be all right.

Temperance

PROHIBITION ON THE FARM AS WELL AS ON THE RAILWAYS.

This is the way the *Rural New-Yorker* looks at it:

For years American railroad men have been forbidden the use of intoxicating liquors while on duty. Rum spells ruin to the men handling such a powerful force as a railroad train—the same as it does in smaller enterprises. The D. L. & W. R. R. Company has now gone a step further in prohibiting the use of liquor, with the following order:

"The use of intoxicants while on or off duty, or the visiting of saloons or places where liquor is sold, incapacitates men for railroad service, and is absolutely prohibited. Any violation of this rule by employees in engine, train, yard, or station service will be sufficient cause for dismissal."

Now, seriously, there is not a person who ever travels on a railroad who will not agree that this order is right. There is not a brewer, distiller, or saloonkeeper who would knowingly give the liquor he sells or makes to the railroad men who handle the train whereon he rides! That being so, why stop at the railroad business with prohibition? There is no business on earth which does not face loss or possible ruin when workmen are free to drink liquor when "on or off duty." There ought to be just such handling of farm laborers, for rum has caused more loss and sorrow to farm homes than it ever did to the railroad business.

SOMETHING MORE ABOUT THE DRUNKEN ENGINEER; "FORTY LIVES BLOTTED OUT, AND SIXTY CRIPPLES MADE."

The fast express train was taken out of Elmira, New York, the other day, for the run to Buffalo on the Lackawanna Railroad. It had on board valuable property and still more precious lives. It went along safely until it approached Corning, and then it ran into a limited passenger train, piled up a wreck of engines and cars, killed forty persons, and injured sixty others.

What was the cause of the disaster? The engineer was drunk. Under the stupor of liquor he passed by the danger signal, paid no attention to the warning fusee that was burning, and disregarded the fluttered cloth of the flagman who had been sent back from the other train to flag him. "Booze" had made him dull.

One more is added to the long list of horrors due to drink. It is a black record. It is the most powerful sermon for total abstinence that could be preached—hundreds of thousands of dollars' worth of property destroyed, forty lives blotted out, and sixty cripples made—all by one man who was drunk.—*Catholic Columbian.*

SAWMILL OR SALOON—WHICH IS THE MORE DANGEROUS TO HUMANITY?

I presume it's comparatively well known that manufacturers are being held more and more liable for damages resulting to workmen using dangerous machinery. If a man is hurt in a sawmill, when he uses ordinary care, the owner of the mill is held responsible. But how about the owner of the saloon? Here is something in regard to the matter, which we clip from the *American Advance,* and it also gives us a little further glimpse of this same Gov. West:

Mr. Edward H. Todd, of Salem, Ore., has noted that Governor West, of that State, favors a "just compensation law requiring the saloon as well as the sawmill to care for its maimed." It is Gov. West's theory that the saloon should no more ask the taxpayer to care for the man whom it has made insane or a pauper, than that the sawmill proprietor should ask the public to care for the man who loses his limb because of the misbehavior of a buzz-saw.

THE BEER BUSINESS AND OUR BOYS; CONDITIONS IN SPRINGFIELD, O., SINCE SALOONS ARE AGAIN RUNNING.

We clip the following from the *American Issue.* What do you think about it?

A few weeks ago the writer, while crossing the bridge over the Pennsylvania R. R., two and one-half blocks from police headquarters, saw six boys, ranging from nine to fifteen years, drinking from a bucket of beer. Being inexperienced they were having quite a lot of trouble with the suds on top. One little fellow, while down on his knees drinking, stopped long enough to say that it was awful bitter, but he guessed he could drink it.

"LIFTING UP" THE FARMER.

Here is something more from the *Rural New-Yorker*:

Says a country clergyman of wide culture and experience: "I don't like to hear about 'uplift commissions' to country people. It sounds as though we others are so far above them that we have to reach down to pull them up, which is taking the wrong standpoint from the beginning.

To the above I give a hearty amen. Just a few days ago a very nice letter came, informing me that I had been recommended as one of a commission to visit foreign nations to investigate their system of making it easier for farmers to borrow money at low rates of interest. If I understand it, the government was to pay all expenses. Now, perhaps my opinion comes from a narrow point of view; but I do not believe the farmers of the United States, as a rule, need any such uplifting. So far as I know, they get all the money they need already, at very liberal rates of interest. There are other people in our nation who need uplifting vastly more than the farmers; and it seems the fellows who are continually inventing excuses to get some appointment to uplift the people, and have Uncle Samuel pay the expenses while they are abroad, do it to put on the style of millionaires, and have the farmers and laboring men foot the bill.

A KIND WORD FOR FRIEND TERRY; FRUIT SUPPERS, ETC.

Mr. Root:—For a long time I have been intending to write you a letter of appreciation. You recently published in GLEANINGS my letter to friend Terry, and I also want to express to you my gratitude for introducing your readers to Mr. Terry and his valuable teachings. It was through you I first learned of him, and it has proven a Godsend to me.

I am following Mr. Terry's advice almost to the letter; yet in one thing I am following you—that is, in regard to time of eating my meals. As I work for day's wages at present I find it impracticable to eat at Terry's meal hours, so I decided to do as you do. I eat breakfast at seven, dinner at noon, and then a lunch of fruit in the evening. I eat no supper. This plan has worked nicely with me, and is more convenient in my present circumstances.

I greatly enjoy all of your Home papers, and I trust you may live long to continue your battle for right. GLEANINGS is an ever welcome guest, and I admire it for its high moral tone.

JOSEPH H. PETERSON.

Ogden, Utah, Aug. 13.